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ENVIRONMENTAL ASSESSMENT BOARD



ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARINGS

VOLUME: 155

DATE: Tuesday, June 2, 1992

BEFORE:

HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

**FARR
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REPORTING INC.**

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2300 Yonge Street, Suite 709, Toronto, Canada M4P 1E4

ENVIRONMENTAL ASSESSMENT BOARD
ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARING

IN THE MATTER OF the Environmental Assessment Act,
R.S.O. 1980, c. 140, as amended, and Regulations
thereunder;

AND IN THE MATTER OF an undertaking by Ontario Hydro
consisting of a program in respect of activities
associated with meeting future electricity
requirements in Ontario.

Held on the 5th Floor, 2200
Yonge Street, Toronto, Ontario,
Tuesday, the 2nd day of June,
1992, commencing at 10:00 a.m.

VOLUME 155

B E F O R E :

THE HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

S T A F F :

MR. M. HARPUR	Board Counsel
MR. R. NUNN	Counsel/Manager, Information Systems
MS. C. MARTIN	Administrative Coordinator
MS. G. MORRISON	Executive Coordinator

(i)

A P P E A R A N C E S

B. CAMPBELL	)	ONTARIO HYDRO
L. FORMUSA)	
B. HARVIE)	
J.F. HOWARD, Q.C.)	
J. LANE)	
G. A. KARISH)	
J.C. SHEPHERD	)	IPPSO
I. MONDROW)	
J. PASSMORE)	
R. WATSON	)	MUNICIPAL ELECTRIC
A. MARK	)	ASSOCIATION
S. COUBAN	)	PROVINCIAL GOVERNMENT
P. MORAN	)	AGENCIES
J. MacDONALD)	
C. MARLATT	)	NORTH SHORE TRIBAL COUNCIL,
D. ESTRIN	)	UNITED CHIEFS AND COUNCILS
H. DAHME	)	OF MANITOULIN, UNION OF
		ONTARIO INDIANS
D. POCH	)	COALITION OF ENVIRONMENTAL
D. STARKMAN	)	GROUPS
D. ARGUE)	
T. ROCKINGHAM		MINISTRY OF ENERGY
B. KELSEY	)	NORTHWATCH
L. GREENSPOON)	
P. MCKAY)	
J.M. RODGER		AMPCO
M. MATTSON	)	ENERGY PROBE
T. McCLENAGHAN)	
A. WAFFLE		ENVIRONMENT CANADA
M. CAMPBELL	)	PUBLIC HEALTH COALITION
		(OPHA, IICPA)
G. GRENVILLE-WOOD		SESCI

A P P E A R A N C E S

(Cont'd)

D. ROGERS	ONGA
H. POCH	) CITY OF TORONTO
J. PARKINSON)
R. POWER	CITY OF TORONTO, SOUTH BRUCE ECONOMIC CORP.
S. THOMPSON	ONTARIO FEDERATION OF AGRICULTURE
B. BODNER	CONSUMERS GAS
J. MONGER	) CAC (ONTARIO)
K. ROSENBERG)
C. GATES)
W. TRIVETT	RON HUNTER
M. KLIPPENSTEIN	POLLUTION PROBE
N. KLEER	) NAN/TREATY #3/TEME-AUGAMA
J. OLTHUIS	) ANISHNABAI AND MOOSE RIVER/
J. CASTRILLI	) JAMES BAY COALITION
T. HILL	TOWN OF NEWCASTLE
M. OMATSU	) OMAA
B. ALLISON)
C. REID)
E. LOCKERBY	AECL
C. SPOEL	) CANADIAN VOICE OF WOMEN
U. FRANKLIN	) FOR PEACE
B. CARR)
F. MACKESY	ON HER OWN BEHALF
D. HUNTER	) DOFASCO
M. BADER)
B. TAYLOR) MOOSONEE DEVELOPMENT AREA
D. HORNER) BOARD AND CHAMBER OF
H. WATSON) COMMERCE

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A P P E A R A N C E S
(Cont'd)

T. HEINTZMAN)	ATOMIC ENERGY OF CANADA
D. HAMER)	
C. FINDLAY)	
P.A. NYKANEN)	CANADIAN MANUFACTURERS ASSOCIATION - ONTARIO
G. MITCHELL		SOCIETY OF AECL PROFESSIONAL EMPLOYEES
S. GOUDGE		CUPE
D. COLBORNE		NIPIGON ABORIGINAL PEOPLES' ALLIANCE
R. CUYLER		ON HIS OWN BEHALF
L. BULLOCK)	CANADIAN NUCLEAR ASSOCIATION
L. CHAN)	
R. MATSUI)	

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<u>JOHN KENNETH SNELSON,</u>	
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1 ---Upon commencing at 10:00 a.m.

2 THE REGISTRAR: Please come to order.

3 This hearing is now in session. Be seated, please.

4 THE CHAIRMAN: Mr. Power.

5 MR. POWER: Thank you, Mr. Chairman.

6 I just wish to advise the Board of some
7 concerns which my client had but I think in light of
8 discussions with Mrs. Formusa this morning I believe we
9 have mostly resolved --

10 THE CHAIRMAN: Well, if that is so, do we
11 need to worry about them?

12 MR. POWER: Well, I guess the only two
13 things that I wish to note to you is that Mrs. Formusa
14 on behalf of Hydro has agreed to undertake to follow up
15 with certain documentation which, if everything unfolds
16 as it should, we shouldn't need to back to you, but I
17 guess I merely want to put you on notice that if it
18 doesn't work out we may need to come back, and I want
19 you to be aware of that process.

20 THE CHAIRMAN: When that happens, you
21 come on back.

22 MR. POWER: Okay, fair enough.

23 The second issue in relation to that is
24 effective last Wednesday we just received extensive
25 technical documentation followed up from our

1 cross-examination on March 3rd on Panel 8 cross and we
2 are still awaiting with luck two further reports that
3 Hydro has limited involvement in but which they have
4 agreed to provide to us.

5 So we are begging your leave for some
6 further time to prepare for this cross-examination.
7 It's not because we are not prepared, but due to the
8 delay in getting the documentation it's going to take
9 some time.

10 The other problem, unfortunately, is one
11 of our experts is a professor with the university.
12 They are now on their break and they are somewhat
13 reluctant to commit to the time frame that we had
14 otherwise hoped they would.

15 THE CHAIRMAN: Well, we can't do much
16 about that. That's between you and the professor, I
17 guess.

18 MRS. FORMUSA: I just wanted to address
19 the question of the delay in the documentation and make
20 it clear that the documentation that is being referred
21 to is documentation that was referred to in an answer
22 to an undertaking provided in Panel 8.

23 The undertaking was provided, there were
24 other documents referred to and Mr. Power has been
25 provided now with those documents.

1 The two studies on which we may have
2 minimal involvement, I can assure you, are not our
3 studies; one is likely not to be completed before -- I
4 don't know when, I'm trying to find that out, and I'll
5 continue to cooperate with Mr. Power.

6 I just wanted it to be clear that the
7 delay in providing the documentation was not as a
8 result of our efforts, or lack of efforts.

9 THE CHAIRMAN: I'm just a little
10 concerned about -- what do you mean by saying your
11 delay in cross-examining this panel. This panel is
12 here now to be cross-examined, and do you want to
13 change your position in the order, is that all it
14 amounts to?

15 MR. POWER: At a minimum, change the
16 order; but, secondly, it appears that this
17 cross-examination of this panel is proceeding a lot
18 quicker than everybody had thought and if it will be
19 completed within the next two to three weeks, I may
20 have a real concern in terms of being able to get some
21 responses back.

22 THE CHAIRMAN: You will have to
23 demonstrate that you have been prejudiced and can't
24 conduct your cross-examination. You'll have to be able
25 to demonstrate that you can't conduct your

1 cross-examination. You'll have to be able to show that
2 before we would delay it beyond the time allocated for
3 the panel.

4 MR. POWER: I appreciate that, Mr.
5 Chairman, which is in part why I'm here today.

6 THE CHAIRMAN: But we haven't got into
7 those details yet.

8 MR. POWER: No.

9 THE CHAIRMAN: I think you should do the
10 best you can to make sure that you are able to do it.

11 MR. POWER: Certainly. Thank you, Mr.
12 Chairman.

13 AMIR SHALABY,
14 JOHN KENNETH SNELSON,
15 JANE BERNICE TENNYSON,
16 FREDERICK GEORGE LONG,
17 BRIAN PAUL WILLIAM DALZIEL,
18 HELEN ANNE HOWES; Resumed.

19 THE CHAIRMAN: Mr. Heintzman.

20 MR. HEINTZMAN: Thank you, Mr. Chairman.

21 CROSS-EXAMINATION BY MR. HEINTZMAN (Cont'd):

22 Q. Mr. Dalziel, at the conclusion of
23 yesterday's hearing you advised us that all of the
24 plans that underlie the Update assume that there is no
25 planning for base load either nuclear, fossil or
 whatever, until 1999; is that correct?

26 MR. DALZIEL: A. That's correct.

1 Q. And can you tell me why 1999, what's
2 the special significance of 1999?

3 A. In putting these two cases together
4 we were looking at reflecting the fact that we are not
5 seeking approvals in this hearing at this time for
6 those base load supply options.

7 Q. That's the reason?

8 A. That's the reason.

9 Q. Now, I wonder if I could take the
10 panel back, and maybe since I'm talking to you, Mr.
11 Dalziel, to a confusion I would have preferred to ask
12 you about directly because I think you can maybe
13 explain it, but if you would turn with me to Exhibit
14 646 to page -- let's, for example, turn to page D2-10.
15 Do you have that page?

16 A. Yes, I do.

17 Q. And you will see in that table D-1
18 shown on page D2-10 the number of 1,775 as the cost of
19 the Manitoba Purchase.

20 A. Yes.

21 Q. And if you would turn with me to page
22 D1-1 - that is, by the way, the lower load growth case
23 for the Update on table D-1.

24 Would you turn with me to table D-1 on
25 page D1-11. As you will see the cost of the Manitoba

1 Purchase in the upper load growth case is 1,775. Do
2 you see that?

3 A. Yes.

4 Q. And the number 1,775 seems to be used
5 in many of these, no matter if you are talking about
6 the upper, the median or the lower load growth, and
7 that just doesn't jive with my understanding of what
8 the cost of the Manitoba Purchase is from what we have
9 looked at, that the economics of the Manitoba Purchase
10 are radically different on an upper, median and lower
11 load growth forecast. Can you explain that to me?

12 A. The cost of the Manitoba Purchase if
13 it's taken -- the costs that are shown there reflect
14 the energies and the conditions of the contract, and
15 whether you take that energy and that capacity in the
16 same pattern under upper, median or lower it's going to
17 cost the same.

18 Now, under the median load forecast cases
19 where we have shown surplus management you would see a
20 different cost value than 1,775.

21 Q. I see. So that the other values
22 associated with transmission or any of the other
23 features of the Manitoba Purchase are reflected
24 somewhere else than in that number of 1,775; is that
25 what you are telling me?

1 A. Yes.

2 Q. Okay.

3 MR. SHALABY: A. Perhaps I can add as
4 well that the economics depend not just on the cost of
5 the purchase but also on the value of the purchase. So
6 the value of the purchase is different under -- that is
7 perhaps a variable that changes most from one load
8 forecast to another.

9 Q. No, but if you look at page -- Mr.
10 Shalaby, if you would turn to Exhibit 442.7 page 8. Do
11 you have that exhibit in front of you?

12 MR. SNELSON: A. I do.

13 Q. Perhaps you can loan your copy to Mr.
14 Shalaby who can look at it with you.

15 MR. SHALABY: A. I have one here.

16 Q. If you would turn to that cost of the
17 purchase line on that table 1 on page 8, Exhibit 442.7,
18 the cost of the purchase is different under the median,
19 upper and lower load growth forecast.

20 MR. SNELSON: A. Well, I think in this
21 particular exhibit the place to go that is perhaps more
22 understandable is table B-1 which breaks down the
23 elements.

24 THE CHAIRMAN: Where is table B-1, Mr.
25 Snelson?

1 MR. SNELSON: That's in appendix D of
2 Exhibit 442.7.

3 MR. HEINTZMAN: Q. That's all for the
4 median load growth forecast though?

5 MR. SNELSON: A. That's all for the
6 median load growth forecast. I think there is probably
7 a figure in there for -- no, maybe there isn't one for
8 upper, medium and lower.

16 Q. So that's just the cost of the
17 capacity to energy?

18 A. I believe so.

19 THE CHAIRMAN: I'm sorry, you are ahead
20 of me. What is the table that you wanted to look at.

21 MR. SNELSON: I'm sorry, I think perhaps
22 for the discussion it was red herring and it perhaps
23 isn't useful. I am sorry.

24 [10:15 a.m.]

25 THE CHAIRMAN: But the trouble is that

1 Mr. Heintzman's question didn't make any sense when you
2 looked at it. You are sure and I'm sure that that
3 can't be right.

4 MR. HEINTZMAN: I think Mr. Snelson
5 wanted us to look at table D-1, but that's all based
6 upon median --

7 THE CHAIRMAN: That's what I am having
8 trouble finding.

9 MR. HEINTZMAN: "D." D as in Donald, -1.

10 THE CHAIRMAN: D as in Donald.

11 MR. HEINTZMAN: In appendix D you have to
12 keep going through the document until you come to the
13 appropriate --

14 THE CHAIRMAN: I have got it. Thank you.

15 MR. HEINTZMAN: Q. And we can see under
16 the enhanced plan the different values for the COP,
17 capacity and energy of 1910, 1917, and 1922 for the
18 various plans.

19 But I think Mr. Snelson has agreed those
20 are all median load growth figures. And my inquiry was
21 what is the cost of the Manitoba Purchase that should
22 go into these schedules that we have in Exhibit 646
23 under upper and lower load growth. And I am being told
24 that the figure on page 8 is not appropriate to look
25 to.

1 MR. SNELSON: A. The cost that goes in
2 there is the cost of the purchase, I believe, of the
3 capacity and energy of the purchase. And the
4 transmission associated with the purchase would be part
5 of the transmission costs that are shown in the 646
6 cost tables. And the emission control costs and
7 credits would be accounted for the emission controls
8 and other costs of that table.

13 MR. DALZIEL: A. In Exhibit 646, in the
14 managed surplus cases take a different pattern of
15 energy than was assumed in the additional cases that we
16 looked at for the upper and lower load forecasts.

17 Q. Where you are not managing the
18 surplus.

24 Q. Even though you are in a lower load
25 growth situation.

1 A. That's right.

2 MR. SHALABY: A. If we can turn to pages
3 6 and 7 of that same exhibit, there is an explanation
4 about the net costs of transmission changing under
5 upper and lower forecast, essentially assuming a higher
6 net cost of transmission under lower and a lower cost
7 of transmission under the upper. And that contributes
8 to the small difference that we see in the table here
9 before us.

10 THE CHAIRMAN: And that exhibit is?

11 MR. SHALABY: 442.7.

12 MR. HEINTZMAN: Q. Yes, I can understand
13 the substantial difference in the transmission costs,
14 but I was trying to get at what was lying behind the
15 figure of 1,775 on Exhibit 646 and why it was the same
16 and I have heard what I have heard. But we have
17 assumed the same number in upper and lower load growth
18 forecast.

19 Now, let me turn to another issue that's
20 on Exhibit 447. Sorry. 442.7. And could you turn
21 with me to appendix C, page 3, with the heading System
22 Incremental Cost Method. And as I understand it, this
23 is one of the three methods that you used for testing
24 the economics of the Manitoba Purchase; is that
25 correct?

1 MR. SNELSON: A. Yes.

2 Q. And in this method, the idea is to
3 determine the incremental costs of that purchase in a
4 system as opposed to another element in the system
5 instead of the Manitoba Purchase.

6 A. This method uses incremental costs of
7 power and energy calculated as we described in Panel 3
8 and applied in similar way to the way in which we
9 applied them to non-utility generation or demand
10 management.

11 Q. Right. Well, that's the point.
12 Under this system incremental cost method, what you did
13 was use demand management. And we can see that from
14 the first sentence under the heading System Incremental
15 Cost Method. You used demand management and
16 non-utility generation to replace the Manitoba
17 Purchase.

18 A. No, that's not correct.

19 Q. I see. Well, can you tell me, that's
20 the way I read this and I guess I must have
21 misunderstood what this was saying. As I understood
22 it, what you were doing was running a system and we see
23 the results on page 4 showing a LUEC of 5.39. Can you
24 tell me what you are inserting into the system, and I
25 understood it to be demand management and non-utility

1 generation, to generate the figure of 5.39.

2 A. No. What is being inserted into the
3 system is whatever is considered to be incremental
4 energy and incremental capacity on the system as
5 described in our exhibits on calculating system
6 incremental costs. Typically, in this sort of period,
7 incremental energy is provided from the existing system
8 if there is no need for new capacity. That would be up
9 to the time that we need capacity. And incremental
10 capacity may be provided by combustion turbines or some
11 such option.

12 Q. Well, if you read the top of page 4,
13 The following avoided costs would
14 apply to demand management or to highly
15 efficient or renewable non-utility
16 generator, assuming a delivery point on
17 the 230 KV bulk electricity system.

18 A. Yes.

19 Q. So that the avoided cost that you are
20 determining is avoided cost for adding demand
21 management or NUGs to the system, isn't that what I am
22 reading?

23 A. Yes. What that means is that if this
24 was to be a demand management or a non-utility
25 generation option, we would calculate the avoided costs

1 by this method.

2 Q. Yes.

3 A. And the avoided costs of those
4 options would be calculated based upon estimates of
5 system incremental energy and system incremental power
6 costs as described in Exhibits 84 and 85 I think are
7 the most thorough and there have been updates to the
8 numbers since them.

9 Q. Yes. And the LUEC that you derive by
10 doing that and using demand management and non-utility
11 generation at an 80 per cent factor is 5.39.

12 A. That is what we would calculate as
13 being the value of demand management or high-efficiency
14 non-utility generation. And if we were to pay up to
15 avoided costs for those options, if we were to actually
16 pay avoided costs for those options, that is what we
17 would be willing to pay.

18 Q. And that number is the number you
19 then compare to the numbers on the prior page of, well,
20 after your bells and whistles, 4.7 LUEC.

21 A. Yes.

22 Q. And the number for the CANDU
23 generation on page two is 3.7 or 5 for the 4 by 881
24 megawatt stations or 5.79 for a 1 by 670 megawatt
25 station.

1 A. Those are on existing sites. There
2 are slightly higher numbers for new sites.

3 Q. Yes. So that we can see that the
4 comparable numbers for demand management and
5 non-utility generation are substantially higher than
6 the 4 by 881 megawatt LUEC.

7 A. In that estimate of the 4 by 881,
8 yes. There may be some transmission costs to account
9 for in addition. And that, of course, is a very large
10 addition of capacity.

11 Q. That's a very large --

12 A. Addition of capacity.

13 Q. Which is?

14 A. 4 by 881.

15 Q. Yes, yes.

16 MR. SHALABY: A. I don't want to
17 belabour the point, but you are saying the costs of
18 demand management and non-utility generation is higher.
19 Wasn't that part of your summation here?

20 Q. Well, Mr. Snelson corrected me by
21 saying if we contract for those options at the avoided
22 cost, we will pay up to 5.39--

23 A. Yes.

24 Q. --cents per kilowatthour.

25 A. Yes. But the costs of these options

1 may be less than that.

2 Q. Now, I would like you to turn to my
3 little group of interrogatory packages. And if you
4 would turn to the seventh one at page, well, the
5 seventh one, page 7. It's got a little circle around
6 it with the number 7.

7 [10:25 a.m.]

8 And I am wondering if you could also have
9 available to you Exhibit 6 and turn with me to page
10 4-6.

11 THE CHAIRMAN: Before we launch into
12 this, this is Interrogatory 10.42.19; is that right?

13 MR. HEINTZMAN: Yes, it is, Mr. Chairman.
14 Could we have that marked.

15 THE REGISTRAR: 683.15, Mr. Chairman.

16 THE CHAIRMAN: Thank you.

17 ---EXHIBIT NO. 683.15: Interrogatory No. 10.42.19.

18 THE CHAIRMAN: What page on Exhibit 6,
19 Mr. Heintzman?

20 MR. HEINTZMAN: 4-6.

21 Q. The interrogatory asked the following
22 question:

23 Has Ontario Hydro prepared any
24 analysis of the nature set forth in
25 Exhibit 6 with respect to Case 18

1 (Revision 1) from the exhibit, assuming
2 either the demand scenario set forth in
3 the DSP Exhibit 3 or the demand scenario
4 set forth in the Update. If so, produce
5 that analysis; if not, prepare such an
6 analysis.

7 And the response is:

8 Attached are the load and resources
9 table and the LMSTM output for Case
10 18 (Revision 1) median load growth case.
11 Information in a form similar to that
12 reported in Exhibit 6 for cases other
13 than Cases 15, 22, 23, 24 and 26 was not
14 compiled and, therefore, cannot be
15 provided.

16 And what I would like to do is look and
17 see the characteristics of Case 18 (Revision 1). And
18 if we look at page 4-6 of Exhibit 6 it says under Case
19 No. 18 (Revision 1):

20 A case similar to Case 8 but
21 reflecting updated modelling data. The
22 timing of new nuclear base load additions
23 reflects two objectives: minimizing
24 overall demand/supply case cost and
25 reducing acid gas and CO(2) emissions.

1 I would take it, Mr. Dalziel or Mr.

2 Shalaby or Mr. Snelson, those are worthy objectives for
3 a case?

4 MR. SNELSON: A. Yes.

5 Q. And then we see what happened to Case
6 18 if we turn the next page. And I take that if you
7 wanted to satisfy yourself about an alternative to the
8 Manitoba contract, that those would be worthy
9 objectives of an alternative?

10 A. Yes.

11 Q. And if we turn to the next page 4-9
12 we see in the third paragraph what happened to Case 18,
13 and it says in the third paragraph:

14 Case 18 was eliminated when it
15 became apparent that a purchase agreement
16 with Manitoba Hydro for 1,000 megawatts
17 of capacity would in fact be signed.
18 That is what happened to that case?

19 A. Yes.

20 Q. And let's look at the characteristics
21 of Case 18, Revision 1 as it appears in the
22 interrogatory which has been marked as Exhibit 683.15.

23 And if we turn to the next page we can
24 see starting in about 2003; is that correct, and in
25 2004, 2005 the CANDU 881s being brought on stream; is

1 that correct?

2 MR. SHALABY: A. Yes, it is.

3 Q. And then if we drop down, further
4 down the page, starting in 2009 further CANDU 881s
5 between 2009 and 2012; is that right?

6 A. Yes.

7 Q. And in 2012 to 2015 further CANDU
8 881s?

9 A. Yes.

10 Q. And if we turn to page 20 --

11 THE CHAIRMAN: Of...?

12 MR. HEINTZMAN: Q. Of the same document;
13 in other words, the last page of the run.

14 As I understand it, this document totals
15 up year-by-year all of the costs of this particular
16 plan, and if we look about the -- it adds up everything
17 on the other sheet, as I understand, it adds up with
18 total societal costs of 18 million - or whatever the
19 number is - 472.7.

20 Do you know how the costs of this plan
21 compared to Case 15, Case 22, Case 23, Case 26 or the
22 Update, or may I take it from Exhibit 6 that they would
23 be very favourable compared to any of those plans?

24 MR. SHALABY: A. Before we start
25 comparing it to other plans, I think I want to note

1 that Revision 1, which is on page 4-6 of Exhibit 6,
2 became Revision 2 on page 4-7 of Exhibit 6 and in
3 Revision 2 we included the radial transmission and
4 approval costs.

5 That is a case that becomes more
6 comparable then to the cases that we reported in
7 Exhibits 3 and 4--

8 Q. All right.

9 A. --and 6.

10 Q. All right. And do we have any LMSTM
11 runs for that case? We were given them for Case 18,
12 Revision 1.

13 A. I guess that's what was requested in
14 the interrogatories so that is why we provided them.

15 Q. Well, as I understood from the
16 interrogatories we were given the LMSTM output for
17 Revision 1?

18 A. And the reason for that is that the
19 interrogatory specifically asked for Revision 1.

20 Q. Well, I see. Well, okay. Do you
21 know if the LMSTM runs for Revision 2 exist?

22 MR. DALZIEL: A. The costs you are
23 referring to us to in the LMSTM output, not all of
24 those costs are actually the costs that are used.

25 THE CHAIRMAN: Now, wait a minute - we

1 will get back to that in a minute - but let's get the
2 answer to the question whether there's a run on
3 Revision 2.

4 MR. SHALABY: Okay, sorry.

5 MR. HEINTZMAN: Q. I wouldn't want to
6 miss a case because we asked for the wrong revision.
7 Are there LMSTM runs for Revision 2?

8 MR. SHALABY: A. Yes, there would be. I
9 think they would probably be similar to these with
10 added transmission and approval costs.

11 My recollection, that is done outside of
12 the LMSTM process.

13 MR. DALZIEL: A. So that what I was
14 going to get to is, the number you have drawn to our
15 attention here may in fact be the same in the LMSTM
16 output.

17 Q. As Revision 2?

18 A. Yes, Revision 1 and Revision 2
19 because LMSTM isn't picking up the refinements to the
20 cost assessment. We relied on the risk assessment
21 model, the RAM model to pick up those details for us.

22 Q. And if we look back at pages 4-4 and
23 4-5, we get some of the evolving thinking that went
24 into the DSP, and you will see that Case 18 as it tells
25 us --

5 MR. DALZIEL: The cost comparison at the
6 time that this was being prepared for Case 18 compared
7 to the others, I don't recall exactly whether they
8 would have been higher or lower.

17 MR. DALZIEL: Case 18 was not carried
18 forward because it did not include the Manitoba
19 Purchase and the Manitoba Purchase was to be a common
20 component of all the cases that were put forward.

21 MR. HEINTZMAN: Q. Right.

22 MR. SNELSON: A. The helpful point that
23 might help you here is that essentially the comparison
24 of the case with the Manitoba Purchase and without
25 Manitoba Purchase that is reported in the original

1 evaluation, which is report SP 686 which is Exhibit
2 434.3, so the comparison with the nuclear based plan is
3 essentially the difference between Case 15 and Case 18.

4 There may have been some slight
5 refinements to make the comparison more appropriate,
6 but that is essentially what the difference was. They
7 were used as the base plans.

8 Q. And do I understand that Case 18 was
9 not used in the comparison plan in the subsequent
10 evaluations of the Manitoba Purchase?

11 A. Case 18 was not because it wasn't
12 appropriate.

13 THE CHAIRMAN: Because it wasn't what?

14 MR. SNELSON: Appropriate.

15 MR. HEINTZMAN: Q. Why wasn't it
16 appropriate?

17 MR. SNELSON: A. The evaluation of the
18 Manitoba Purchase is compared to a case with the
19 Manitoba Purchase, compared to a case without the
20 Manitoba Purchase, and these evaluations are usually
21 done that the case with the Manitoba Purchase is
22 whatever is the current plan at the time which the
23 evaluation is being done.

24 So at the moment the current plan would
25 be the update nuclear managed surplus case or the

1 update fossil managed surplus indication, and then to
2 evaluate the purchase you create an essentially similar
3 plan where you make the one change of removing the
4 Manitoba Purchase and replacing it with something else,
5 and so Case 18 is only appropriate while Case 15 is the
6 base plan.

7 Q. Well, I had always understood that
8 this process was supposed to be iterative and you go
9 back to a rejected case which was then thought to be
10 the best case, and 18 made it pretty well along the
11 line and say: Now, here is the best case that got to
12 grade 7, let's compare it, even though we are now in
13 grade 11, to the best one that got that far?

14 A. Yes, provided the definition of the
15 case hasn't changed so that it's no longer appropriate.

16 For instance, with higher estimates of
17 demand management, higher estimates of non-utility
18 generation, different load forecasts, different cost
19 estimates for fuels, then plans shift.

20 So whatever is the base case is shifting
21 over time because it is an evolving process and an
22 iterative process.

23 Q. But these cases are based upon case
24 philosophies or plan philosophies; are they not?

25 A. There is some philosophy associated

1 with cases, but there are also actual detailed numbers
2 and forecasts associated with the cases.

3 Q. No, but if you look at pages 4-4 and
4 4-5 of Exhibit 6 the philosophy is evolving and the
5 philosophy on 4-6 for Case 18 was similar to Case 8 but
6 taking out the Manitoba Purchase; right?

7 A. Case 8 didn't have the Manitoba
8 Purchase.

9 Q. Didn't?

10 A. No.

11 Q. No, I know, but -- I shouldn't say
12 taking out, it didn't have the Manitoba Purchase?

13 A. It didn't have the Manitoba Purchase,
14 yes.

15 Q. Right. And Case 8 in turn had a
16 philosophy behind it that fell between Cases 4 and 7;
17 right, and we see that from page 4-5?

18 A. Yes, it is described that way and it
19 is.

20 Q. And philosophically Case 4 is what I
21 would call a predecessor to Case 15, a mixed nuclear
22 and CTU peaking and Case 7 is a predecessor, if I can
23 call it, to Cases 23 or 24 depending how extreme it is,
24 that is more nuclear; right?

25 A. No, I believe that Case 15 is not

1 that close to Case 4.

2 Q. I see. Well, the philosophy is the
3 philosophy of Case 15; is it not?

4 A. I would say the philosophy of Case 15
5 is very close to the philosophy of Case 8.

6 Q. I see. Okay then, that's fine. So
7 then Case 4 and 7 would be cases on either side of Case
8 8?

9 A. Yes.

10 Q. Which would represent, say, the
11 somewhat more fossil to the somewhat more nuclear cases
12 that ended up in the final analysis, and they are all
13 listed by the way on page 4-8.

14 [10:42 a.m.]

15 So this report has 21, 22, 23, 24, and 26
16 all being analyzed here together; right?

17 A. Yes.

18 Q. And you will see that the authors
19 refer to Case 15 on page 4-6, that is similar to Case
20 5. Do you see that?

21 A. Yes.

22 Q. So we can see the philosophy
23 developing between mixed nuclear and fossil, entirely
24 nuclear with fossil for peaking, or entirely nuclear
25 and using the present facilities for peaking. They are

1 all reflected as they get generated down the planning
2 horizon, aren't they?

3 A. Yes.

4 Q. And Case 18 was one of the cases that
5 was going down that planning horizon?

6 A. Yes.

7 Q. And I just ask you once again, when
8 you went to use -- you say a case very close to Case
9 18, Revision 1 or Revision 2, to analyze the Manitoba
10 Purchase the first time around?

11 A. That is correct.

12 Q. But when you went back to do it in
13 1991 and again in 1992, you didn't go back to use the
14 philosophy in Case 18 and adjust it to make it
15 comparable and compare the two.

16 A. We evaluated the Manitoba Purchase
17 against what we thought was the most likely plan in the
18 event that the Manitoba Purchase did not go ahead.

19 Q. And that case, as we saw in 1992, was
20 a very strange looking nuclear case that doesn't even
21 make it into analysis that is presented in the Update.

22 A. It makes it into Exhibit 442.7 where
23 we did the re-evaluation of the Manitoba Purchase.

24 Q. But not into Exhibit 646?

25 A. That is correct.

1 Q. And that evaluation of the Manitoba
2 Purchase, the 1992 evaluation, was done after the
3 Update.

10 Q. Yes. And in terms of the cost of
11 Revision 1 or Revision 2 of Case 18, may I take it from
12 the comments on page 4-6 that that revision would be
13 very competitive if not perhaps below Case 15.

14 THE CHAIRMAN: In terms of cost, you
15 mean?

16 MR. HEINTZMAN: Q. In terms of cost,
17 yes.

18 MR. SNELSON: A. I would expect it to be
19 quite close to Case 15 in terms of cost. The
20 cost/benefit ratio of the Manitoba Purchase at that
21 time was indicated as being about, I think, 1.06
22 against the nuclear plan. Sorry 1.0--

23 9. 7.

1 would probably be slightly more expensive than the case
2 without the purchase.

3 Q. So, I can assume that the Case 18,
4 Revision 1 would be less expensive than the case with
5 the Manitoba Purchase, i.e., Case 15?

6 A. Well, Revision 2, probably, with all
7 the costs included, yes.

8 Q. Yes. I want to deal with some of the
9 interrogatories that I haven't mentioned. And would
10 you look to the first interrogatory and that is
11 Interrogatory 10.42.1. If that could be given a
12 number?

13 THE REGISTRAR: That be would be .16.

14 ---EXHIBIT NO. 683.16: Interrogatory No. 10.42.1.

15 MR. HEINTZMAN: Q. And that
16 interrogatory was asking:

17 What reduction in total CO(2) and acid
18 gas emissions can be expected over a
19 40-year period of operation if all of
20 the projected gas-fired generating
21 facilities in the plan, both Hydro-owned
22 CTUs and NUGs, were replaced with new
23 nuclear plants?

24 And your answer is:

25 Case 23 is a predominantly nuclear

1 plan with some natural gas-fired CTUs
2 included in the lower and upper load
3 forecast situations. No CTUs are
4 included under median load forecast.
5 Comparing the air emissions of Case 23 to
6 Case 15 under the same load forecast
7 provides information that nearly matches
8 the conditions of the question.

9 So, do I understand, therefore, that if you want to
10 reduce CO(2) and acid gas emissions over that 40-year
11 period and you want to find out how the Update would do
12 that, you can compare Case 23 to Case 15 and you will
13 get a pretty good answer, is that what I'm being told?

14 MR. DALZIEL: A. I think we are
15 indicating that you can see directionally which way
16 things are going to go by comparing Case 23 with Case
17 15.

18 Q. And I'm told that that will nearly
19 match the result that one would expect; is that
20 correct?

21 A. I'm not sure that would nearly match
22 the results that you would expect. The interrogatory
23 response is saying that it's matching the kinds of
24 conditions that are being suggested in the
25 interrogatory. But all I am hesitating on is, if you

are saying that the exact comparison would reflect what would happen today I'm not certain that that would be the result.

But directionally, it would certainly be the result.

Q. All right. Mr. Chairman, I was going to deal with Interrogatory 10.7.15 which has attached various charts of benefits to Ontario, but you will be glad to hear that I am not going to deal with that because it's too complicated and I think the record is adequately filled with that kind of information.

I do want to deal with Interrogatory
10.42.23 which you will find on page 21.

THE REGISTRAR: That will be 683.17.
---EXHIBIT NO. 683.17: Interrogatory No. 10.42.23

MR. HEINTZMAN: Q. And in this interrogatory you are telling us:

In what years are the hydraulic stations referred to in the Update anticipated to be installed? Provide tables comparable to 12-6 and 12-13 of the DSP for the hydraulic stations now contemplated in the Update.

And you have given to us an update of figure 12-6. And would you turn to that at page 22.

1 And that schedule we see in front of us
2 is the schedule with respect to anticipated dates for
3 the hydraulic plan, is that correct, Mr. Dalziel?

4 MR. DALZIEL: A. Yes.

5 Q. And if you look at Ragged Chute, you
6 are anticipating starting the EA process in 1999; is
7 that correct?

8 A. Yes.

9 Q. And this is a base load plant, is it?

10 A. Ragged Chute, a base load plant?

11 Q. Is it providing base load or peaking
12 load or what kind of load is it providing.

13 A. I don't think it is providing base
14 load, but I would have to check that.

15 Q. In any event you are starting in 1999
16 and you are asking for approval from this Board with
17 respect to that unit?

18 A. We are asking approval for a range of
19 capacity associated with the hydraulic option.

20 Q. Including that unit, including that
21 generating station?

22 A. It may or may not include that
23 generating station.

24 It's a range of capacity, it's been
25 described as 1,400 to 1,800 megawatts.

1 Q. And for the purposes of this analysis
2 you have included Ragged Chute?

3 A. That's right.

4 Q. And the station, the construction of
5 it on a median load forecast would start in 2003, is
6 that it?

7 A. Yes, that's what the figure is
8 showing.

9 Q. And it would on a median load
10 forecast --

11 THE CHAIRMAN: Just a minute. The little
12 dot, is that not significant? It shows 2008.

13 MR. DALZIEL: That is the in-service
14 date.

15 MR. HEINTZMAN: Yes.

16 MR. DALZIEL: The beginning of the
17 construction would be around 2003 where the heavier
18 shaded line begins.

19 MR. HEINTZMAN: Q. The grey shaded area
20 is the construction phase; is that correct?

21 THE CHAIRMAN: So the acquisition and the
22 construction phase are the same; is that right?

23 MR. SNELSON: Yes.

24 MR. HEINTZMAN: Q. You call it
25 construction acquisition phase. So you were including

1 both within the grey shaded area?

2 MR. DALZIEL: A. That's right.

3 Q. The dot tells us the date of the
4 first generation or in-service date?

5 A. Yes, first unit.

6 Q. 2008?

7 A. Yes.

8 Q. And then would you turn to the last
9 interrogatory in this package, Interrogatory 10.42.39?

10 THE REGISTRAR: That is .18.

11 ---EXHIBIT NO. 683.18: Interrogatory No. 10.42.39.

12 MR. HEINTZMAN: Q. And this case asks
13 the following question:

14 Was Case 18, Revision 1 in Exhibit 6
15 or any appropriate variant thereof
16 considered as an alternative method to
17 the Update, if not, why not?

18 And the response was:

19 No. All of the cases presented in the
20 Update include the transmission required
21 for the purchase from Manitoba. This
22 transmission is necessary to realize the
23 benefits of the signed contract with
24 Manitoba.

25 That was the answer that was given, Mr. Snelson?

1 MR. SNELSON: A. Yes.

2 Q. Now, Mr. Shalaby, I want to come back
3 to some questions that you and I had about these plans
4 and the fact that all of them include the NUG program,
5 the demand management program, the Manitoba Purchase,
6 the life extensions. And none of the plans have any
7 plans showing an alternative with less or none of those
8 elements for comparison purposes, right?

9 MR. SHALABY: A. Not the ones we
10 finalized and took to the full extent of analysis and
11 presented to this Board.

12 Q. Yes. And in terms of the demand
13 management program, Mr. Shalaby, you will agree that
14 the documents tell that Hydro is spending about \$8
15 billion on this program over the next 20 years or so.

18 Q. Big dollars?

19 A. And a large number of employees?

21 Q. Yes. And it's entering into
22 contracts and arrangements and what all in relation to
23 this program?

24 A. Yes.

25 Q. So it's a large activity and

1 enterprise of Ontario Hydro, isn't it?

2 A. Ontario Hydro and many others in the
3 province, a lot of allies and partners, yes.

4 Q. And the same applies to the NUG
5 program, again the non-utility generation, it's a large
6 program in terms of dollars?

7 A. Yes.

8 Q. It's large program in terms of
9 employees?

10 A. Not at Hydro, but again, the
11 partnership with private developers and others, yes.

12 Q. Hydro has significant number of
13 people working on this activity?

14 A. I wouldn't say so, no.

15 [10:55 a.m.]

16 Q. Well, how many?

17 A. 20, 25, something like that.

18 Q. So it's a reasonably sized activity
19 and enterprise of Hydro?

20 A. Yes.

21 Q. And the Manitoba Purchase again, I
22 think the numbers show there's something like \$2
23 billion involved in that?

24 A. Approximately, yes.

25 Q. So it's a large activity and

1 enterprise of Hydro as well?

2 A. Yes.

3 Q. And the fossil extensions, you are
4 spending a lot of money on that activity; right?

5 A. Over the years, including the
6 rehabilitation and the environmental controls, it will
7 be a significant program, yes.

8 Q. Yes. So, it's a reasonably sized
9 activity and enterprise of Ontario Hydro?

10 A. Yes.

11 Q. And when we look to the Chapter 15 in
12 the DSP to page 15-2 we see the primary and secondary
13 criteria that are applied to the fossil and nuclear
14 programs that are analyzed as the major supply
15 alternatives in Exhibit 3?

16 A. This particular one is evaluation for
17 the integrated plans, but similar criteria are applied
18 to options as well.

19 Q. Right. But we don't find those
20 criteria appearing in the chapters dealing with the
21 Manitoba Purchase; do we?

22 A. I think you do.

23 Q. Oh, could you show that to me?

24 A. If you look at page 14-5.

25 Q. Yes.

1 A. Chapter 14 is the one that dealt with
2 major supply options, including purchases from other
3 utilities, and right there on the side bar you find the
4 evaluation criteria mentioned again.

5 Q. Yes, but we don't find those criteria
6 being applied themselves against the Manitoba Purchase?

7 A. Yes, you do.

8 Q. Could you show that to me?

9 A. Yes. Figure 14-5, which is a long
10 running figure, my memory is that it extends all the
11 way to the purchase options. I want to make sure of
12 that.

13 We certainly have done that in the
14 comparison of options that we presented in our
15 supplementary witness statement and in direct evidence,
16 and I thought that it also was part of Chapter 14.

17 Let me take a minute, it may not be in
18 the figures. If we go to the discussion starting on
19 page 14-7 there's a heading Description and Selection
20 of Purchase Options.

21 Q. But this chapter is dealing with
22 major supply options?

23 A. Yes.

24 Q. Go ahead.

25 A. So I am identifying for you in this

1 chapter where the discussion of purchase options,
2 including purchases from Quebec, Manitoba and from
3 Newfoundland as well.

4 Q. Yes. And can you show me where those
5 criteria, which are expressly applied against fossil
6 and nuclear alternatives in Chapter 15 are applied to
7 the Manitoba Purchase?

8 A. I think I indicated we did that in
9 Exhibit 646 -- I mean, the witness statement. What
10 number is that?

11 Q. Well, let's just stay with the DSP.
12 Is it in Exhibit 3 anywhere?

13 MR. DALZIEL: A. There is some
14 discussion of some of the criteria. Turn to page 14-8,
15 under the right-hand column which is entitled:
16 Manitoba Purchase Option. We won't find all of the
17 criteria explicitly addressed, but we will find some of
18 them have been touched on.

19 The bottom of that column on page 14-8
20 there's a mention of costs, a mention of reliability,
21 and then on the next page 14-9 on the left-hand column
22 there's a mention of the renewable indigenous Canadian
23 resource.

24 Q. But the primary --

25 A. Further on down on the left-hand

1 column of page 14-9 there is the mention of the
2 benefits associated with the higher interconnection
3 transfer capability.

4 Q. But that part ends up with the
5 paragraph saying:

6 The Manitoba Purchase is included
7 in all plan alternatives.

8 Right?

9 A. That's right, it does.

10 Q. And the criteria say -- the primary
11 criteria - look back at page 15-2 and they're found
12 many places -

13 The primary criteria which must be
14 met for evaluating and developing
15 recommended plans are...

16 Can you show me where an analysis of the Manitoba
17 Purchase against those criteria is done and a reasoned
18 analysis that the Manitoba Purchase meets all of those
19 criteria?

20 MR. SNELSON: A. I am not sure you will
21 find it all in one place, but there are a number of
22 places where you will find it.

23 As Mr. Shalaby has referred to, in our
24 witness statement which is Exhibit 646 we, for our
25 direct evidence of this panel, showed an analysis of

1 all of the options including the Manitoba Purchase
2 transmission with respect to all of the criteria -- or
3 most, all of the criteria that could be applied to
4 options.

5 Mr. Shalaby has pointed out to you some
6 of the specific discussions. I think if you read
7 through documents such as Exhibit 434.3, which was the
8 original evaluation, you will find most of these things
9 addressed in one way or another.

10 Q. Well, I guess others will judge that,
11 but what you are saying is if you sift through these
12 documents you say that somehow you can find express
13 consideration of these criteria; is that what you are
14 saying, including documents prepared after Plan 452 or
15 Update 452 was produced; is that what you are saying?

16 A. In some cases it's documented
17 afterwards, yes.

18 Q. All right. Let's turn to demand
19 management. Can you show me where these criteria have
20 applied to demand management, or can I take your
21 answer, Mr. Shalaby, that since it was a primary
22 objective as the DSPS says, that these criteria were
23 not applied to demand management?

24 MR. SHALABY: A. I think again the
25 documents on demand management, the rationale for the

1 strategy, Exhibit 74 for example, that's the
2 demand/supply planning strategy, goes into a lot of
3 discussion on the reasons Hydro prefers demand
4 management.

5 Q. Yes?

6 A. The environmental benefits, the
7 customer satisfaction benefits and so on, so that the
8 criteria are mentioned in the evaluation of the
9 strategic direction of why we prefer demand management.

10 Panel 4 went through a lot of discussion
11 on, for example, the natural environmental benefits of
12 the demand management program.

13 Q. Well, if you looked at Chapter 7
14 which is the demand management plan there's no
15 statement in that chapter of these criteria and a
16 reasoned analysis as to why or whether the demand
17 management plan meets those criteria; is there?

18 A. There is when we apply the criteria
19 to integrated plans as a whole. We apply those
20 criteria to a plan that includes a substantial amount
21 of demand management.

22 Q. I want to talk --

23 A. So the benefits of demand management
24 will you show when they are evaluated on an integrated
25 plan basis.

Q. Well, we can read the document. I think you will find the criteria expressly contained in Chapter 14 and 15, particularly Chapter 15.

But those criteria do not appear in what you call the demand management plan, Chapter 7; do they?

A. Those criteria were presented here to be applied to two types of things: One is integrated plans, and those include demand management, the other one is major supply options and demand management is not a major supply option.

Q. So do I have an answer then that those criteria are not applied to the Demand Management Plan itself?

A. They are discussed in the evolution of the strategy, Exhibit 74, and they are applied to the demand management as part of an integrated plan, not separately to the demand management plan, although we have done separate assessments of employment impacts, of natural environmental impacts and have presented that in Panel 4.

So, I think the answer probably mirrors what Mr. Snelson is saying, that you will not find it all in one place, but it is in several documents.

Q. I see. Well, and I guess the same

1 answer then implies to the NUG, non-utility generation
2 chapter, you don't find those criteria set forth in
3 that chapter?

4 A. It is --

5 Q. Chapter 8.

6 A. It is to be found in application to
7 integrated plans because the NUG is part of the
8 integrated plan. So definitely to the extent the NUG
9 plan influences the integrated plan, they are evaluated
10 and evaluated separately in many other documents as
11 well.

12 Q. But, sir, it's very easy to set out
13 the criteria like you do in Chapter 15 and then go
14 through a reasoned analysis of the application of those
15 criteria; is it not. That's fairly simple to do, if
16 you want to do it.

17 A. And we have done that in our witness
18 supplementary statement and we have done it in our
19 direct evidence.

20 Q. I see.

21 A. We have pulled all of that together
22 and put it in one place in those two places.

23 Mr. Snelson also mentioned that some of
24 those criteria are not meaningful when applied to
25 individual options. For example, the criteria of

1 diversity doesn't hold any meaning when you apply it to
2 a single option.

3 Q. Let's take your demand management
4 program. Did you analyze which of the demand
5 management programs satisfies those criteria as opposed
6 to which others, and which better satisfy those
7 criteria?

8 A. Absolutely.

9 Q. Where did you analyze that load
10 shifting or fuel shifting or mandatory EEI is better,
11 one to the other?

12 A. I can refer you to Exhibit 467 and
13 many other documents that went into detailed evaluation
14 of demand management starting with Exhibit 25, and
15 after that the numbers are fading in my memory now, but
16 78 perhaps.

17 There are many documents that go into
18 every demand management program, calculate the costs of
19 that program and tell us on a comparative basis how
20 they compare to other options, other supply options
21 through the comparison to avoided cost.

22 Q. No, but they don't compare one to the
23 other and say: Look, you are better off from an
24 environmental standpoint or a social standpoint or a
25 cost standpoint to do load shifting, let's say, than

1 fuel switching; do they?

2 A. In the circumstances that we are
3 implementing demand management, we are implementing all
4 of the programs.

5 Q. So you don't do that analysis?

6 MR. SNELSON: A. Exhibit 646 gave
7 different information with respect to those criteria,
8 with respect to energy efficiency improvements, load
9 shifting, fuel switching and discount demand service.

10 Q. But that document was prepared a
11 month or so ago?

12 A. It was a summary of information that
13 was available and it brought it together in one place.

14 Q. And it suggests and proposes
15 proceeding with all of those plans to their maximum?

16 A. Generally, yes.

17 Q. Yes.

18 A. And in each of these cases you have
19 put forward to this Board a plan; you have put forward
20 a NUG plan, a non-utility generation plan, you have put
21 forward a demand management plan, you have put forward
22 a life extension plan; have you not, Mr. Dalziel?

23 MR. DALZIEL: A. We have put forward
24 those components, yes.

25 Q. Yes. So what we have is we have

1 these activities and enterprises, you have developed
2 plans and have them before this Board.

3 And could you turn with me to Chapter 19
4 page 19-1.

5 THE CHAIRMAN: Of Exhibit 3.

6 MR. HEINTZMAN: Of Exhibit 3. I'm sorry,
7 yes, Exhibit 3.

8 Q. To the last paragraph on the
9 right-hand side which reads:

10 The program submitted for approval
11 represents only part of the results of
12 the integrated planning which led to the
13 identification of candidate demand/supply
14 plans. The plan components not included
15 in the program either do not require
16 approval or are not being submitted for
17 approval in this application."

18 Now, let's go through each of these and
19 tell me which ones fall under which rubric. Demand
20 management, I take it that is included in the program;
21 is it, Mr. Shalaby?

22 MR. SHALABY: A. Yes, in the integrated
23 plan.

24 Q. Yes. Well, it was included in the
25 program you are referring to here?

1 A. Yes.

2 Q. And is it --

3 MR. SNELSON: A. I believe that there's
4 a distinction being made here between the plan and the
5 program submitted for approval.

6 Q. Oh, that's what I want to analyze,
7 yes.

8 A. That is correct. But you see, it
9 says: "The plan components not included in the
10 program...", so in this language that is being used
11 here the plan encompasses the full integrated
12 Demand/Supply Plan and the program I believe is - and
13 subject to correction - I believe the program is only
14 those specific things for which approval is being
15 sought.

16 Q. Right. And that's what I want to
17 find out, into which category these things fall. Let's
18 take demand management, is that something that you say
19 does not require approval or is not being submitted for
20 approval; which is it?

21 MR. SHALABY: A. Does not require
22 approval.

23 Q. Does not require approval.

24 A. That's correct.

25 MR. SNELSON: A. This is kind of getting

1 into a legal area as to whether or not it requires
2 approval, but that is our understanding.

3 THE CHAIRMAN: Well, the position that
4 has been taken throughout this hearing by Ontario Hydro
5 is that they do not require for their demand management
6 plan.

7 MR. HEINTZMAN: Q. Okay. And as to the
8 non-utility generation, again it's included in the
9 plan?

10 MR. SHALABY: A. In the integrated plan.

11 Q. Yes. And is it also, as the Chairman
12 said, one that does not require approval?

13 A. That's correct.

14 THE CHAIRMAN: I didn't say it, Ontario
15 Hydro said it.

16 MR. HEINTZMAN: Q. That Ontario Hydro
17 has said, and that you are indicating does not require
18 approval; that's where we fit that one?

19 MR. SHALABY: A. That is correct.

20 MR. SNELSON: A. Well, Ontario Hydro
21 does not require approval. There may be approvals
22 required, but they would be the responsibility of the
23 proponent, of the non-utility generator.

24 Q. And then the Manitoba contract
25 itself, you are not asking for approval for it, just

1 for the transmission; is that correct?

2 A. As regards environmental approval, we
3 are not seeking environmental approval of the Manitoba
4 contract, that is a signed contract which is supported
5 by order-in-council from the provincial government.

6 Q. And, again, is that one that you say
7 falls, so I understand, under the words do not require
8 approval?

9 A. Do not require approval in this
10 application.

11 Q. Well, do not require approval.

12 A. I believe they do not require
13 approval under the Environmental Assessment Act.

14 Q. Yes. And life extensions, how about
15 those, where do they fit; they are included in the
16 plan?

17 MR. SHALABY: A. Yes.

18 Q. And are they under the rubric of do
19 not require approval or; not being submitted for
20 approval in this application?

21 A. There may be a combination of the
22 two.

23 Q. Explain that to me.

24 A. Life extension of fixing the units in
25 all likelihood does not require approval but, for

1 example, installation of environmental controls such as
2 selective catalytic reduction, I don't know whether
3 they do or do not require approval.

4 [11:15 a.m.]

5 Q. Well, do you have Exhibit 694 in
6 front of you, sir?

7 A. I do.

8 Q. And if you turn to page 2, at the
9 bottom of the page under the heading Ontario EA Act, it
10 says:

11 All Ontario Hydro activities are
12 subject to review under the EA Act.
13 Unless exempted, Ontario Hydro is
14 required to submit the Minister of the
15 Environment an EA or other acceptable
16 documentation and cannot proceed with
17 project implementation until the
18 documents have been approved.

19 And would you turn with me to table 2,
20 which lists, as of September the 17th, 1990, Ontario
21 Hydro's EA Act Experience. And drop down to the
22 Eugenia generating station, which is about two thirds
23 of the way down the page. Do you see that?

24 MS. HOWES: A. Yes.

25 Q. And that project was rehabilitation

1 of that station?

2 A. Yes.

3 Q. And you submitted an environmental
4 review in February of 1987?

5 A. Yes.

6 Q. And you got an exemption, as appears
7 under the column Approval Exemption?

8 A. Yes, I see that.

9 Q. So that the rehabilitation of these
10 units required environmental assessment.

11 A. I think for these it was under the
12 class EA, but I would have to check under that. If you
13 proceed or look at page 3 of the paper that you were
14 referring to, there are a number of available options
15 in terms of EAs.

16 There are EA studies required for a
17 number of activities. I think to clarify your point on
18 page 2, which began "all Ontario Hydro activities..." I
19 think the reference was probably to major generating
20 stations as is referred to in the paragraph preceding
21 that.

22 Q. Well, I'm advised that that is a
23 site-specific exemption that applies to the
24 rehabilitation of the Eugenia generating station.

25 A. That's right. We probably had to do

1 some significant work there. I am not familiar with
2 Eugenia, but I would assume that we were required to do
3 an environmental evaluation of the work.

4 Q. Yes. That is what I'm saying.

5 MRS. FORMUSA: I can confirm that usually
6 when an exemption order or an order in counsel is
7 obtained, it's usually on the basis of an environmental
8 report or some formal study that's submitted to the
9 government in support of the exemption order in
10 counsel.

11 So we are crossing a fine line. I
12 haven't said up until point, in terms of the legal
13 requirements under these various statutes, and I'm
14 prepared to let the questions go ahead. But I'm also
15 prepared to make submissions on any of these points if
16 we are crossing into legal counsel's field.

17 MR. HEINTZMAN: Q. The next item on the
18 list is sale of the Galetta generating station on the
19 Ontario Hydro EA Act experience?

20 MS. HOWES: A. Yes, I see that.

21 Q. So here you are selling a generating
22 capacity.

23 A. I'm assuming that's what it refers
24 to, yes.

25 Q. Is there any difference between

1 selling the generating capacity and buying generating
2 capacity?

3 A. From an environmental point of view?

4 Q. Yes.

5 A. I'm not aware. I'm not familiar with
6 the Galetta sale.

7 MRS. FORMUSA: That was the sale of a
8 complete station. That wasn't the sale of capacity or
9 energy. It was the actual facilities that were soled
10 to a non-utility generator from Ontario Hydro.

11 MR. HEINTZMAN: Q. But you considered it
12 required to go through an environmental assessment for
13 the sale of that generating station.

14 THE CHAIRMAN: Well, I'm not sure because
15 there's no submission to the Ministry and there's no
16 review and there's no hearing. And it says
17 Environmental Assessment Regulation 293. So there
18 doesn't seem to be any process at all.

19 MR. HEINTZMAN: No.

20 Q. But in respect of the application of
21 the Environmental Assessment Act, had it not been for
22 that regulation, what we are being told here is that
23 this station falls within Ontario Hydro's EA
24 experience, i.e., this would be a unit that falls
25 within the application of the Environmental Assessment

1 Act, right?

2 MS. HOWES: A. I would have to get some
3 more information. As the Chairman has indicated, there
4 doesn't appear to be a whole lot of activity that was
5 done. But I would have to check on that.

6 Q. Well, let's turn to the next page.

7 THE CHAIRMAN: I'm not sure where all
8 this is leading to.

9 MR. HEINTZMAN: I just think it's useful
10 background for the Board to have, as the application of
11 the sentence in paragraph 19 of Exhibit 3.

12 THE CHAIRMAN: There are some things that
13 Hydro doesn't think they require approvals for and some
14 things which they are not asking for approval at this
15 time and other things which they are, all of which are
16 components of the plan.

17 MR. HEINTZMAN: And the Board is going to
18 have to make a judgment on that issue.

19 THE CHAIRMAN: What sort of a judgment,
20 in your submission?

21 MR. HEINTZMAN: As to whether Ontario
22 Hydro is correct that they do not need environmental
23 assessment with respect to their non-utility generation
24 plan, with respect to their demand management plan,
25 with respect to the contract to purchase Manitoba power

1 and energy, with respect to their extension of the
2 fossil plants.

3 THE CHAIRMAN: Well, that's a matter
4 which we may have to deal with as part of the
5 submissions. But as far as these witnesses are
6 concerned, I don't know how they can be much help in
7 going through this kind of line of questioning.

8 MR. HEINTZMAN: Well, these are the
9 witness who integrate these plans and are, therefore,
10 in the front line of dealing with these kind of issues,
11 I would have thought, other than the lawyers. And we
12 don't want to talk to the lawyers.

13 MRS. FORMUSA: Well, sure we do.
14 [Laughter] I think the lawyers, quite frankly, are on
15 the front line of those issues. And yes, the witnesses
16 are aware of the legal requirements under the
17 Environmental Assessment Act but that's advice that
18 counsel had been giving with respect to the approvals
19 that are being sought. And if the Board would find it
20 useful, then I can provide more information. But I
21 don't think that the line of questioning is really
22 something fully within their areas of expertise. At
23 some point they are going to say, well, that's it. I
24 mean, they are aware of how the application is
25 structured. But as to what approvals Ontario Hydro

1 requires for each and every component, I think that's
2 more appropriate a question for counsel if the Board
3 wants that information.

4 MR. HEINTZMAN: Well, I'm in the Board's
5 hands. If it's not considered to be helpful, I don't
6 want to pursue it.

7 THE CHAIRMAN: I think primarily it's a
8 legal issue, as people have said. And I'm not sure
9 there is much to be gained by going through the details
10 of these particular matters. They are shown on table 2
11 of Exhibit 694.

12 MR. HEINTZMAN: I just had one last
13 thing. Could we turn, sir, or members of the panel,
14 sorry, to the last interrogatory in the package
15 10.42.42?

16 THE REGISTRAR: That is .19.

17 ---EXHIBIT NO. 683.19: Interrogatory No. 10.42.42.

18 MR. HEINTZMAN: And if we could have
19 regard to the document that was prepared that purports
20 to set out the history of the preparation of the
21 Update.

22 THE CHAIRMAN: That's document 692, is
23 that it?

24 MR. HEINTZMAN: Yes, Exhibit 692.

25 Q. And what the interrogatory is telling

1 us, or the question was, when did Ontario Hydro first
2 commence preparation of the Update and what
3 investigations and procedures did Ontario Hydro
4 undertake in preparing the Update?

5 And the question specifically said,

6 Do you not include in your answer any
7 work undertaken in respect to the
8 elements of the Update, such as demand
9 management, NUGs, and load growth before
10 a decision was made within Ontario to
11 prepare the Update, but rather A) advise
12 that a decision was made to prepare or
13 commence preparation of the Update.

14 And the answer is, "A preparation of the
15 Update began in September, 1991." And we can read the
16 balance of the exhibit. That's a correct statement, is
17 it, Mr. Snelson?

18 MR. SNELSON: A. Yes, August, September,
19 1991.

20 Q. And the answer says September, 1991.

21 A. Yes.

22 Q. And Mr. Eliesen became the chairman
23 of Ontario Hydro in September of 1991, did he not?

24 A. I suspect it was before that, but I
25 don't recall that date precisely.

Q. I'm advised that that's the date when he became the chairman of Ontario Hydro. Could you check and let me know?

MR. SHALABY: A. I think we have on the record here speeches by Mr. Eliesen that are dated before that.

Q. I see. Well, I was told September of 1991.

A. There was a conference, for example, in the summer of 1991.

Q. But I understood he became the chairman of Ontario Hydro in September of 1991.

MS. HOWES: A. I seem to recall a spring date, not a fall date.

Q. Can you let us know that date?

MRS. FORMUSA: I might be interested in knowing why that is pertinent to Ontario Hydro's questions.

THE CHAIRMAN: It's certainly not a controversial matter. It's a purely straight factual matter. My recollection is that he may have become chairman but he may have been associated with Ontario Hydro before that in some other capacity. I'm not quite sure.

MR. HEINTZMAN: I think that's correct.

1 MRS. FORMUSA: Well, he was deputy
2 minister.

3 THE CHAIRMAN: He was deputy minister of
4 energy, I recognize that. But there was a back and
5 forth series of events surrounding his appointment,
6 that I can't remember now.

7 MR. HEINTZMAN: Q. You can find that out
8 for us, Ms. Howes?

9 MS. HOWES: A. Certainly.

10 Q. I don't think I need an undertaking
11 on the record for that.

12 And in this analysis, starting in 692, on
13 page 2, you say that certain questions were considered
14 in the period August to mid-September, 1991. And the
15 first question is, what planning changes were required
16 to accommodate new demand management, NUG, and
17 hydraulic targets. So that was an objective that was
18 specified by that question. Is that correct, Mr.
19 Dalziel?

20 MR. DALZIEL: A. At that particular time
21 we were certainly looking at the impact of the new
22 demand management and NUG program and the hydraulic
23 option.

24 Q. And the objective was to accommodate
25 new demand management and hydraulic targets?

1 A. Yes, to incorporate those in the
2 management plan.

3 Q. Was any consideration given of the
4 opposite objective, that is, reducing demand
5 management, NUG, or hydraulic targets or maintaining
6 them and replacing them with other supply or demand
7 alternatives?

8 A. No, I don't believe so.

9 Q. And then the third objective stated,
10 what are the implications of replacing new nuclear
11 supply with utility-owned fossil supply and NUG? Do
12 you see that?

13 A. Yes.

14 Q. Again, was the opposite objective
15 studied or gradients of it?

16 A. Oh, okay. I was focussing on the
17 NUG. Yes, we do look at replacing new nuclear capacity
18 with utility-owned fossil supply, yes.

19 Q. That's what the question says.

20 A. Yes.

21 Q. Was the opposite or gradients of it
22 analyzed?

23 A. What do you mean by "the opposite"?

24 Q. By maintaining new nuclear or
25 increasing nuclear or replacing utility-owned fossil

1 supply in NUGs with other alternatives.

2 A. With alternatives other than nuclear?

3 Q. No, with either nuclear or other
4 alternatives than fossil or NUGs.

5 [11:32 a.m.]

6 MR. SHALABY: A. I think inherent in the
7 first point is that demand management, for example, has
8 replaced some of the fossil capacity. So we have
9 looked at replacing some of the fossil capacity with
10 demand management, for example.

11 Q. All right. With anything else?

12 MR. DALZIEL: A. We looked at cases that
13 had different amounts of nuclear and fossil capacity.
14 Whether they were explicitly replacing or varying
15 degrees of what you are getting at -- I'm afraid I'm
16 not understanding your question.

17 Q. Well, the point is that this process
18 starts off in August and September of 1991 with these
19 objectives; right?

20 A. Yes, that's right.

21 Q. And it ends up in December with a
22 document that we see in the Update?

23 A. Well, between that it ends up -- it
24 doesn't end up, it goes into the planning questions,
25 those following six items in mid to late September,

1 1991.

2 - Q. Yes. But those four questions are
3 stated as objectives, and I am just asking you: Were
4 other objectives, in particular in respect of the third
5 one, not replacing nuclear, or increasing nuclear, or
6 replacing utility-owned fossil supply in NUGs with
7 other things than demand management, NUGs or fossil.

8 Did you analyze that; if so, I haven't
9 seen it.

10 MR. SHALABY: A. This set of questions -
11 you are calling them objectives, we are calling them
12 planning questions - and they come on page 2 of this
13 document.

14 Page 1 of this document says, there have
15 been a whole lot of changes in the planning
16 environment. What we said to ask ourselves is: How to
17 we respond to the changes in the planning environment.

18 So we weren't setting out to discuss
19 hypothetical questions, we are saying the planning
20 environment has changed in very definitive ways and the
21 questions relate to: How do we respond to the changes
22 in the planning environment.

23 Q. Yes. And you are setting out
24 requirements; what is required?

25 A. These flow directly from the changes

1 in the planning environment.

2 Q. Well, that is for others to judge,
3 but you are setting out requirements, that's what this
4 document says.

5 MR. SNELSON: A. The document says
6 questions to be considered.

7 MR. SHALABY: A. Yes.

8 Q. What planning changes are required to
9 accommodate these objectives?

10 A. Yes, because these --

11 THE CHAIRMAN: These questions at this
12 stage are getting somewhat argumentative.

13 I think the question that has been asked
14 is: Did Ontario Hydro in August to mid-September, 1991
15 consider the implications of replacing utility-owned
16 fossil supply and NUGs with other forms of supply
17 including nuclear supply.

18 Is that the question?

19 MR. HEINTZMAN: That's the question.

20 THE CHAIRMAN: And I don't think we have
21 an answer to that question yet.

22 MR. SNELSON: I think the answer that was
23 given is that there were considerations of different
24 mixes of nuclear and fossil for meeting the supply
25 requirements considered at that time and there was a

1 case that had nuclear to meet principally the base load
2 requirements and there were cases with fossil to meet
3 principally the base load requirements, and that's
4 similar to our nuclear and fossil cases that we showed
5 in the update.

6 MR. HEINTZMAN: Q. But I suggest to you
7 that those were developed to achieve the objective of
8 replacing new nuclear supply with utility-owned fossil
9 supply and NUGs?

10 MR. SNELSON: A. No.

11 Q. Weren't they?

12 A. No. Let's consider the history a
13 little bit. At the end of the 1989 planning process
14 that led to Exhibit 3, Ontario Hydro concluded that
15 nuclear - essentially by preferring Case 15 - there is
16 an implicit assumption that nuclear is the preferred
17 option for base load supply.

18 And what this is saying is should we
19 change that presumption that nuclear is the preferred
20 option for base load supply.

21 And so we considered the cases that had
22 fossil instead of nuclear for base load supply, and the
23 conclusions of that analysis were that we couldn't make
24 up our mind and we didn't need to make up our mind and
25 that's why that is shown in the Plan Update as update

1 fossil and update nuclear cases.

2 So these are all relative to, if you
3 like, the sort of planning thinking that was existing
4 following the 1989 planning process and that all areas
5 where - because, as Mr. Shalaby has indicated, there
6 have been changes in the planning environment - we had
7 to question certain of our presumptions from that
8 previous planning process and ask ourselves these
9 questions again.

10 Q. Sir, I could ask the questions two
11 ways I suppose. One I could say is: Did you ever
12 consider the implications of replacing new fossil
13 supply with utility-owned nuclear supply and NUGs, and
14 the answer to that, at least on the evidence before the
15 Board, is no, you didn't.

16 A. The cases that were considered to be
17 continuation of previous thinking used nuclear for the
18 base load supply, and we did not consider cases of
19 using nuclear for peak load supply or intermediate load
20 supply.

21 Q. And you didn't consider any cases
22 where you would replace new fossil base load with more
23 nuclear; did you?

24 MR. DALZIEL: A. Well, I would think
25 that the answer to that is yes.

1 Q. Okay. Can you help me on that?

2 A. The reason I say that is I'm looking
3 at those four points, those four planning questions
4 under August to mid-September and I am relating them to
5 the six questions as they finally evolved also during
6 that same period, mid to late September.

7 Just going from the top, the first point:
8 What planning changes were required to accommodate new
9 demand management NUGs and hydraulic targets. That
10 applies to all of the six planning questions that
11 follow, okay.

12 What is the scope of an impact of life
13 extension of existing units. Well, I think that
14 relates to Item 2, fossil life extensions under the mid
15 to late September, 1991.

16 The third one that you are focussing on
17 now: What are the implications of replacing new
18 nuclear supply with utility-owned fossil supply and
19 NUG. I think that maps down to points 1 and 3 in the
20 list below for those planning questions.

21 So, yes, we looked at cases that had new
22 nuclear facilities and, yes, we looked at cases that
23 had new fossil facilities without nuclear facilities.

24 Q. But you didn't look at any case that
25 replaced new fossil supply?

1 A. Well, you could say that CANDU 6 for
2 base load is replacing IGCC for base load.

3 Q. No, but Case 15, you didn't even look
4 at any case that had more nuclear in it than Case 15
5 which translates into your update so-called nuclear
6 case; did you?

7 A. That's correct, yes.

8 Q. Yes. So that what we have is that
9 you considered those four requirements in that
10 paragraph headed August to mid-September, 1991, those
11 are the four and only four questions or requirements
12 that you addressed; right?

13 A. We addressed those questions and they
14 evolved into the six planning questions that we see
15 below.

16 Q. Yes,

17 MR. HEINTZMAN: Those are all my
18 questions.

19 THE CHAIRMAN: Thank you.

20 MR. HEINTZMAN: And Mr. Hamer will take
21 over for a short while after the break, if that's a
22 convenient place.

23 THE CHAIRMAN: Yes, we will break now.

24 THE REGISTRAR: Please come to order.

25 This hearing will recess for 15 minutes.

1 ---Recess at 11:40 a.m.

2 ---On resuming at 12:03 p.m.

3 THE REGISTRAR: Please come to order.

4 This hearing is again in session. Be seated, please.

5 THE CHAIRMAN: Mr. Hamer.

6 MR. HAMER: Thank you, Mr. Chairman.

7 MS. HOWES: Could I just add some
8 information. I have confirmed the start date of Marc
9 Eliesen as chair of Ontario Hydro, and it was June 5th,
10 1991.

11 MR. SHALABY: I think we should wish him
12 a happy anniversary this week.

13 MS. HOWES: We could do that.

14 MR. HAMER: Is he doing a good job?

15 CROSS-EXAMINATION BY MR. HAMER:

16 Q. Dr. Long and Dr. Tennyson, I can tell
17 you that I will almost certainly have no questions for
18 you, so you can continue to relax.

19 Mr. Snelson, is it correct that the NUG
20 program takes Ontario Hydro, in effect, into a
21 partnership with the independent power producers?

22 MR. SNELSON: A. We haven't described it
23 that way but, yes, there is some degree of partnership,
24 some aspects of it.

25 Q. All right. And it requires you, in

1 effect, to work closely with the NUG producers as if
2 you were partners; isn't that so?

3 A. We obviously have to work closely
4 with the NUG industry. I don't know quite what
5 significance you are referring to as if we were in a
6 partnership.

7 Q. Well, for example, once a NUG project
8 is on line, you would have to work on a daily basis
9 with the project managers to ensure that it was
10 integrated effectively into the Ontario Hydro system;
11 fair?

12 A. Yes. There are operational concerns
13 that are defined by operational agreements with the
14 NUGs and under those agreements they will be
15 administered by Ontario Hydro operational staff and the
16 managers of the NUG facility.

17 Q. All right. And the NUG component of
18 Ontario Hydro's business will be a program which
19 evolves over time; correct?

20 A. Yes.

21 Q. It will require you to prepare a plan
22 as has already been done and periodically to update
23 that plan; correct?

24 A. Yes.

25 Q. And it's a significant enterprise in

1 which Ontario Hydro has not traditionally been involved
2 very much; correct?

5 Q. Now, I have distributed a package of
6 excerpts from all sorts of documents which I believe
7 has been placed before the Board as well, or is about
8 to be placed.

11 THE REGISTRAR: 698.

12 MR. HAMER: The front page is simply AECL
13 Transcript and Exhibit Excerpts.

16 MR. HAMER: Q. Could we turn please to
17 page 62 in that collection, and these are from the NUG
18 update document, and I believe the two tables to which
19 I'm referring are attachment 1 to the NUG update
20 document.

21 Do you have that, Mr. Snelson.

22 MR. SNELSON: A. I have your tables and
23 your page 62, yes.

24 Q. All right. And in the year 2014
25 under the managed case there are 3,600-odd NUG

1 megawatts; correct?

2 A. Which year was that, sorry?

3 Q. 2014.

4 A. 2014.

5 Q. 3,667 megawatts.

6 A. Yes.

7 Q. And I would like you to tell us,
8 please, how much of that capacity is major supply NUG
9 capacity as Hydro now projects things?

10 A. Apart from the major supply NUG
11 capacity that was identified in Panel 5, I don't think
12 we have separately identified any major capacity in
13 there.

14 Q. So that at the moment you are not
15 projecting any further major supply NUGs; is that
16 correct?

17 A. The NUG plan does not forecast major
18 supply NUGs in future, but they may occur.

19 Q. And in the year 2000 then, if we go
20 backwards, the 1,683 megawatts there don't include any
21 additional NUG capacity obviously as well; is that
22 correct?

23 A. They include the NUGs that are
24 currently under contract and some additional NUGs and
25 the only major supply component of that is the ones

1 that are either under contract or -- I believe are the
2 only ones under contract.

3 Q. And roughly speaking, what was the
4 capacity involved in those major supply NUGs?

5 A. I believe you have one of the
6 relevant tables in your package.

7 Q. That's at page 54?

8 A. Yes, that is correct.

9 Q. And I must confess I didn't
10 understand the table very well, but where is the major
11 supply NUG capacity in that table?

12 A. Column A is the 1990 forecast, and
13 column G is the non-preferred component of that
14 forecast, and the non-preferred component is either
15 major supply non-utility generation or cogeneration
16 that is not well thermally matched and has much larger
17 electricity production than would be matched with the
18 thermal energy use.

19 Q. So that it's a --

20 A. And that is with respect to the 1990
21 forecast. I believe that column F is the 1991 forecast
22 that was discussed in Panel 5 and column H shows the
23 non-preferred component of column F.

24 Q. And what does column H consist of,
25 major supply NUGs or oversized cogeneration units?

1 A. A combination.

2 Q. And oversized cogeneration units are
3 almost major supply NUGs, in effect?

4 A. Yes.

5 THE CHAIRMAN: And column G is the same;
6 is that right, they contain major supply NUGs that are
7 not preferred?

8 MR. SNELSON: Column B?

9 THE CHAIRMAN: G as in George.

10 MR. SNELSON: Yes, I think I referred to
11 that just a short while ago.

12 THE CHAIRMAN: Yes.

13 MR. HAMER: Q. And speaking in very
14 general terms, the environmental characteristics of the
15 major supply NUGs are roughly similar to the
16 environmental characteristics of Ontario Hydro's
17 gas-fired plants; is that correct,

18 MR. SNELSON: A. Yes.

19 Q. And indeed, a number of the
20 environmental characteristics of other NUGs which are
21 gas fired would again be similar to Ontario Hydro's
22 gas-fired plants, although the size may be smaller in
23 the case of NUGs?

24 A. Sorry, I missed the question.

25 Q. The environmental characteristics of

1 other NUGs which are gas fired but not major supply
2 NUGs would be similar to the environmental
3 characteristics of Ontario Hydro gas-fired plants; is
4 that correct?

5 MS. HOWES: A. Generally and that was
6 included in my direct evidence and it's also in the
7 witness statement where there is a comparison across
8 those options.

9 MR. SNELSON: A. There may be some
10 differences in quantities because well-matched
11 cogeneration has higher thermal efficiency and that
12 might influence the actual quantities of pollutants
13 that are released, if you have to burn less fuel to get
14 the same amount of electricity.

15 Q. And that kind of distinction can be
16 observed in some of the different kinds of gas-fired
17 plants that Ontario Hydro itself would build; would it
18 not?

19 A. I don't believe that we have built
20 any high-efficiency cogeneration plants using gas.

21 Q. But Ontario Hydro can build a
22 combined-cycle gas plant; can it not?

23 A. That is correct, but that is a lower
24 efficiency than a well-matched cogeneration plant.

25 Q. All right. But higher than a

1 combustion turbine unit?

2 A. Yes.

3 Q. And would you agree, Mr. Snelson, or
4 whomever else is more expert in the area, that we are
5 still in the period which has been referred to as a
6 window of opportunity for NUG developers by reason of
7 low natural gas prices?

8 A. Yes.

9 Q. And it's arguable still as to how
10 long that window will remain open?

11 A. Yes.

12 Q. And we can still say fairly that five
13 years from now we don't expect gas suppliers to be
14 signing the same kind of contracts with NUG developers
15 as they are today?

16 [12:13 p.m.]

17 A. I could not be that specific. The
18 most knowledgeable person with respect to the overall
19 gas market and fuel markets generally was Mr. Smith on
20 Panel 8.

21 Q. But you wouldn't disagree with Mr.
22 Brown who testified in the NUG panel, and this is at
23 page 11 of my package. In the middle of my page 11:

24 Five years from now we don't expect
25 them to be signing those kinds of deals

1 but the gas suppliers are willing to give
2 those contracts right now.

7 Q. But my question was, you wouldn't
8 disagree with what Mr. Brown said there in the passage
9 that I just read to you?

13 Q. Can you recall if Mr. Smith disagreed
14 with Mr. Brown?

19 Q. And would you agree, as well, Mr.
20 Snelson, to the extent that you are able, that one is
21 able to project natural gas prices with greater
22 certainty for the forthcoming decade than one can
23 project them for the decade beyond.

1 Q. And you would agree with that?

2 A. That is true of most projections.

3 Q. And at present, it's anticipated that
4 if the NUG program had been allowed to proceed as it
5 was before February of this year, there would be a
6 surplus of generating capacity in the system including
7 the NUG system by about the year 2000?

8 A. Yes.

9 Q. And Ontario Hydro recognizes, does it
10 not, that NUG development must be managed over the near
11 term as one of the steps to be taken to manage that
12 potential surplus of capacity.

13 A. That is one of the actions that we
14 are taking, yes.

15 Q. As we saw in the table back at page
16 62, and there is a corresponding table at 63 of my
17 exhibit, whether or not the surplus is managed, Ontario
18 Hydro still anticipates having about 3,600 megawatts of
19 NUG capacity by the year 2014.

20 And I'm referring there to purchase and
21 load displace NUG capacity, is that correct? The year
22 2014, in the managed cases 3,667 megawatts; and in the
23 unmanaged cases 3,657 megawatts.

24 A. Yes.

25 Q. And in addition, there is expected to

1 be by the year 2014 about 600 megawatts of what is
2 called natural NUG development, bringing the total to
3 4,200 megawatts by the year 2014; is that correct?

4 A. The natural NUGs would be additional
5 to that. The natural non-utility generation would be
6 additional to that.

7 Q. Bringing the total to about 4,200
8 megawatts, is that correct, Mr. Dalziel?

9 MR. DALZIEL: A. Within about 100
10 megawatts or so, yes.

11 Q. Thank you. And the difference
12 between the managed and unmanaged cases comes, if we
13 look at these two tables, at about the year 2000. And
14 we can see that if there is a managed surplus, then you
15 are only projecting about 1,683 megawatts of NUG
16 capacity; whereas in the unmanaged surplus case, you
17 are projecting about 1,100 megawatts more for a total
18 of 2,748 megawatts in the year 2000, correct?

19 MR. SNELSON: A. The 1,683 appears to be
20 on the line 2001.

21 Q. I'm sorry.

22 A. If I'm reading across correctly.

23 Q. So it should be the 1,671; correct?

24 A. 1,671 for the year 2000 in the
25 managed case. And in the unmanaged case, 2,748.

1 Q. So there is almost 1,100 megawatts
2 less in the year 2000 if you manage the surplus;
3 correct?

6 Q. Well, that's all we have before us in
7 terms of NUG projections under the Update; correct?

8 A. Yes.

15 A. Yes.

16 Q. And if we look at the managed case,
17 the bulk of that additional capacity is going to come
18 in the years, if I can get my lines straight, 2005
19 through 2010; correct? Those are the largest capacity
20 additions of about 250 megawatts a year.

21 A. Yes.

22 Q. For six years: correct?

23 A. Yes.

24 Q. And the majority of that additional
25 capacity during those years is gas-fired, in your

1 projection?

2 A. I would expect so.

3 Q. And during that same period, you
4 would expect the demand side management program to be
5 switching energy use from electricity to gas?

6 A. There is a fuel switching component
7 to our demand side programs, yes.

8 Q. Will do that?

9 A. Yes.

10 Q. And if the upper load growth should
11 be experienced rather than the median load growth
12 projected, during that same period, roughly speaking,
13 the first decade of the next century, Ontario Hydro's
14 use of natural gas in its own facilities will be
15 escalating rapidly, too, correct, under the Update?

16 A. I believe we showed that in some of
17 the documents, particularly Exhibit 646 and the
18 attachments to it.

19 Q. And if the NUGs are increasing their
20 use of natural gas during that period and your
21 customers are increasing their use of natural gas
22 having been induced to switch off electricity, and
23 Ontario Hydro is increasing its use of natural gas,
24 together all of those will represent increased demand
25 for natural gas during that period, correct?

1 A. Yes, and I indicated so in my direct
2 evidence.

3 Q. And if Ontario Hydro goes to base
4 load gas-fired generation in large quantities in place
5 of nuclear, for example, that will represent a
6 substantial increase in the province's use of natural
7 gas overall; will it not?

8 A. Yes.

9 Q. And in all, if there are increased
10 demands on natural gas from several sectors, as I have
11 just described, that will have upward pressure on gas
12 prices?

13 A. That's a question which Mr. Smith on
14 Panel 8 would have been best able to address.

15 Q. All right. But you would agree with
16 that, would you not?

17 A. Directionally, the pressure would be
18 upward. The view of our fuel's division is that our
19 use of natural gas, together with the non-utility
20 generator's use, together with the fuel-switching
21 component of the demand side program is not a large
22 enough change to affect North American markets for
23 natural gas.

24 Q. But it will represent a significant
25 increase in the Ontario demand for natural gas; will it

1 not?

2 A. That is correct.

3 Q. And as Mr. Mark was told when he
4 cross-examined earlier in this panel, Ontario Hydro has
5 not performed any sensitivity analysis of the impact
6 that increased natural gas prices would have on either
7 the median or the upper load growth plans, is that
8 correct?

9 A. That is correct. These issues of
10 natural gas prices were, I believe, addressed in
11 Exhibit 452, because this was an issue that we felt was
12 significant in the Update. And so you will see there
13 are figures on pages 17 through 19 of Exhibit 452 which
14 compare some of the gas uses in Ontario, some of the
15 forecast of gas prices and generally address the
16 question of whether, in fact, we are relying too
17 heavily on natural gas.

18 Q. But in the six update cases and the
19 cost data which flow from those cases, there has been
20 no sensitivity analysis performed to determine the
21 effect of increased natural gas prices on those cases,
22 correct?

23 A. We have not done a cost sensitivity
24 to the natural gas price.

25 Q. Now, if the NUG program should

1 underachieve and fall short of your projected capacity
2 additions, that would be a contingency which would
3 cause Ontario Hydro to resort to the response
4 portfolio, correct?

5 A. It could do, yes.

6 Q. And one reason that the NUG program
7 might underachieve would be if gas prices went higher
8 than expected so that the economics for the NUG
9 developers were not as attractive; correct?

10 A. If that was not matched with the
11 corresponding change in avoided cost or what Ontario
12 Hydro was prepared to pay, yes.

13 Q. And in the response portfolio, and
14 this is just a few pages further on, we see the
15 contingency of NUG targets not being achieved as the
16 first item on the list; correct? Under risk A) targets
17 not achieved.

18 A. That applies to demand management and
19 non-utility generation, yes.

20 Q. Right. And if NUG targets are not
21 achieved by reason of gas prices having upset the
22 economics, the first response that Ontario Hydro lists
23 under the response column is build CTUs; correct?

24 A. That is shown in that table, yes,
25 which is a sample response portfolio, yes.

1 Q. But if the reason is that gas prices
2 have gone higher than expected, then CTUs are similarly
3 going to be less attractive to Ontario Hydro; correct?

4 A. Not necessarily to the same degree.

5 Q. Nonetheless, you would agree that
6 it's unlikely that NUG producers would be experiencing
7 higher gas costs and Ontario Hydro would not experience
8 higher gas costs.

9 A. The reason I say not to the same
10 degree is not because we would experience different gas
11 prices, but that if we were building combustion turbine
12 units we would probably use them for peaking and
13 supplement the energy by more energy from our existing
14 system.

15 And consequently, you wouldn't be
16 replacing a base load NUG with a base load gas option.
17 You would be replacing it with peaking gas option or
18 oil option and some additional energy from existing
19 plants.

20 Q. Well, let me be clear on that. Are
21 you saying that if you have fewer base load NUGs
22 because of gas prices, you would replace those base
23 load NUGs with peaking plants?

24 A. That would be a quite likely
25 response, yes.

1 Q. Well, I thought that base load power
2 was power that was on most of the time?

3 A. That is correct.

4 Q. And would your gas peaking plant,
5 then, be on most of the time to take its place?

6 A. No. There is quite a lot of freedom
7 as to how you meet your base load, intermediate, and
8 peak loads. And there are plants on the system that
9 can perform more than one of those functions and to
10 different degrees. So you can, if you cut out a base
11 load plant, then you can use some of your intermediate
12 load capacity that you already have that is capable of
13 operating base load. You can operate that as base load
14 and then add some peaking plant which then would make
15 some other capacity that you have existing which would
16 otherwise be operating as peaking, operate as
17 intermediate capacity factor sort of generation, but
18 towards the lower end of the capacity factor range of
19 immediate.

20 So it's kind of a continuum. You can add
21 something in. If you cut something out of the bottom
22 of the base, then everything else can slide down and
23 then you can add something at the peak and you still
24 have an acceptable system.

25 Q. And the second response that you list

1 in Exhibit 452 for NUG shortfalls is build other major
2 supply; correct--

3 A. Yes.

4 Q. --i.e., other than CTUs.

5 A. Yes.

6 Q. And what other major supply is
7 contemplated there?

8 [12:30 p.m.]

9 A. Other than CTUs I think you would be
10 into fossil and nuclear plant. I think missed from
11 this response portfolio is the primary response
12 actually to this uncertainty, and that is to not manage
13 as much of the surplus.

14 So for instance, if you have less demand
15 management and non-utility generation than we propose,
16 than we have in our plans, project in our plans and
17 that is creating a surplus of a few thousand megawatts,
18 then if we shortfall on those targets then we don't
19 have to take the actions that we otherwise would have
20 to take to manage the surplus.

21 Q. Yes. But, Mr. Snelson, if our
22 premise is that gas prices have put the economics off
23 for the NUG developers, you are not going to have to
24 worry about a surplus of NUG capacity anyway; are you?

25 A. Well, we are talking about a

1 shortfall in the NUG program and that is the response.

2 Q. So your problem is that if you
3 haven't met your NUG targets of 1,700 megawatts by the
4 year 2000 you have ceased to manage the surplus?

5 A. No. The NUG target by the year 2000,
6 and this is including both for natural and other NUGs,
7 is stated to be 3,100 megawatts and that hasn't
8 changed.

9 Q. But your projection for the
10 managed --

11 THE CHAIRMAN: I'm sorry, I missed that
12 point. What did you say?

13 MR. SNELSON: Well, the NUG target to the
14 year 2000, I believe 3,100 megawatts is the number that
15 is commonly referred to, it still remains a target of
16 having capability of being able to achieve that.

17 THE CHAIRMAN: But the 1,671 is what you
18 are now planning on; is that right?

19 MR. SNELSON: 1,671 is what we think we
20 should cut back to, or is an illustration of what we
21 might cut back to as part of managing the surplus, but
22 we haven't given up on that 3,100 megawatts target or
23 the capability of being able to do that.

24 MR. HAMER: Q. And the 3,100 megawatts
25 possibility or target, or whatever you want to call it,

1 is based on the window of opportunity for low priced,
2 long-term gas contracts; correct?

3 MR. SNELSON: A. The 3,100 megawatts?

4 Q. Yes.

5 A. Yes, principally from cogeneration
6 and renewable NUGs.

7 Q. Well, renewable NUGs are not based on
8 low-priced gas?

9 A. No, but they do form part of the
10 3,100 megawatts target.

11 Q. Right. But you are only going to run
12 into a surplus situation if the window of opportunity
13 remains open; fair?

14 A. If the gas prices rise faster than we
15 have predicted in our gas price forecast--

16 Q. Yes.

17 A. --then we would not achieve our
18 target, but the gas price forecast does include rises
19 in the real price of natural gas.

20 Q. But if it's wrong and that causes NUG
21 developers to back away and you don't achieve a
22 surplus, then it's not going to be a response to say:
23 Well, we are no longer going to manage the surplus?

24 A. Well, if we were, for instance,
25 offered -- we expected to be offered 3,100 megawatts of

1 non-utility generation and only to take 1,671, then
2 quite a lot of those offers could fall by the wayside
3 for one reason or another and you would still achieve
4 1,671 and, in fact, a large part of that 1,671 is
5 already under contract.

6 Q. All right. But if we get into the
7 years 2004, 2005 where we saw the series of large
8 additions of NUG capacity but the gas bubble is no
9 longer there, you may well fall short of the
10 projections in those years; correct, and that is...

11 A. Our projections are on the basis of
12 the gas bubble not being there.

13 Q. All right. Well, you agreed with me
14 earlier that one reason that your NUG program may fall
15 short of projections would be that gas prices rise
16 higher than expected; correct?

17 A. Higher than our forecast, yes.

18 Q. Right. And in that event I'm
19 suggesting to you that you can't count on NUGs coming
20 in to fill the vacuum because the reason NUGs are there
21 not in the first place is because of gas prices.

22 A. And that is correct. The point that
23 I am having difficulty with is that you are
24 characterizing that as being the end of the gas bubble,
25 gas prices being higher than our forecast, and my point

1 is that our forecast is on the basis of gas prices
2 rising, of the gas price bubble ending and the effect
3 of the gas price bubble is at the moment we are
4 inundated for proposals for non-utility generation far
5 in excess of what is shown in these projections.

6 Q. And as you agreed earlier, it's more
7 uncertain to predict gas prices which will be
8 applicable during the first decade of the next century
9 than it is for the forthcoming decade?

10 A. As it is uncertain in predicting a
11 lot of factors for the next decade.

12 Q. Right. I have attached at the back
13 of my package on the last page, a page from Exhibit 682
14 which includes a graph of natural gas use by Ontario
15 Hydro in its own facilities in the case of upper load
16 growth. I want to ask you to undertake, if it's not in
17 the material somewhere already, to provide a similar
18 graph to that at the bottom of page 85 of Exhibit 682
19 which would include the gas consumption by the province
20 as a whole over the period of that graph by load
21 displacement NUGs and by purchase NUGs so that we can
22 see all those things together.

23 Would that be possible?

24 A. I believe that is already in exhibit
25 or something very similar to it is in Exhibit 646.

1 Which case was it that you are referring to?

2 Q. It's the upper load forecast.

3 A. I believe if you look at page D1-8 of
4 Exhibit 646 then there is something which may meet your
5 requirements.

6 Q. Are those graphs based on the upper
7 load growth?

8 MR. DALZIEL: A. Yes, they are.

9 Q. All right. That wasn't clear. We
10 don't see the provincial consumption of natural gas on
11 that graph; correct?

12 A. No, we don't. I mentioned in my
13 direct evidence that the current provincial consumption
14 of natural gas is, I believe, around 800 billion cubic
15 feet.

16 Q. But could --

17 A. If I didn't mention that number in my
18 direct, I think I gave the percentage.

19 Q. Would Ontario Hydro have within its
20 fuels division or elsewhere a graph similar to the one
21 on page D1-8 showing anticipated provincial consumption
22 of natural gas?

23 A. I don't know the answer to that.

24 Q. Would you undertake to inquire and
25 provide it to us, if there is one?

1 A. If there is one, yes.

2 THE CHAIRMAN: Do you want an undertaking
3 number for that?

4 MR. HAMER: Yes.

5 THE CHAIRMAN: Your friend Mr. Rogers may
6 be able to help you with that one.

7 MR. HAMER: If I can get here I will take
8 it here; and, if I can't, I'll try there.

9 THE REGISTRAR: Undertaking.

10 MR. HAMER: Yes.

11 THE CHAIRMAN: Pardon? An undertaking.

12 THE REGISTRAR: You want an undertaking
13 number?

14 THE CHAIRMAN: Yes.

15 THE REGISTRAR: Yes, 684.18.

16 THE CHAIRMAN: Thank you.

17 ---UNDERTAKING NO. 684.18: Ontario Hydro undertakes to
18 determine whether a graph
19 similar to page D1-18 showing
20 anticipated provincial
consumption of natural gas
exists.

21 MR. HAMER: Q. Ms. Howes, could we turn
22 briefly to the matter of radioactive emissions. May we
23 take it that Ontario Hydro's Panel 9 witnesses had the
24 experts on radioactivity among their number?

25 MS. HOWES: A. Yes.

1 Q. All right. And you would defer to
2 their expertise in the area of radioactive emissions, I
3 take it?

4 A. Yes.

5 Q. All right. And could you turn,
6 please, to page 89 of my exhibit, and this is a page
7 from the Table of Environmental Characteristics which
8 is contained in Exhibit 646, and under the heading
9 fossil on that table there is a column headed RAD for
10 radioactive something or other; is that correct?

11 A. Yes.

12 Q. And if we look on the line headed
13 fossil 4 by 500 megawatt U.S. coal, we see a hyphen in
14 that column. And my question is: I take it that that
15 hyphen doesn't equal zero; is that correct?

16 A. I think probably it stands for
17 negligible, small.

18 Q. All right. And again with IGCC which
19 has a coal component, there's a hyphen, and that
20 doesn't mean zero it means something very small?

21 A. Yes.

22 Q. And we had it from one of the Panel 9
23 witnesses that coal stations do emit radioactive
24 emissions and that as with nuclear stations those
25 emissions are very small?

1 A. Yes, I understand that.

2 Q. Could we go then to page 59.

3 A. Of your material?

4 Q. Of my material, thank you.

5 And this may be back to Mr. Snelson.

6 This is a page in the NUG update document.

7 THE CHAIRMAN: What's the exhibit number
8 for that?

9 MR. HAMER: Exhibit 322.21, Mr. Chairman.

10 Q. And in the very middle of page 59, my
11 page 59, at the end of that paragraph before the
12 heading you see the sentence:

13 The review of other aspects of the
14 non-utility generation program, such as
15 issues arising from public utilities
16 purchasing electrical power from third
17 parties, is ongoing.

18 And, Mr. Snelson, can you tell me what
19 issues are referred to there as arising from public
20 utilities purchasing from third parties?

21 MR. SNELSON: A. Ontario Hydro had a
22 policy of permitting municipal utilities to have the
23 right of first refusal to buy non-utility generation
24 that is within their service territory.

25 That policy is under review at the moment

1 and I believe that the reasons that that is under
2 review are because of certain major considerations with
3 respect to non-utility generation in the Windsor area.

4 Q. It refers to issues in the plural.

5 5 Are there any other issues?

6 A. That is the one that I'm aware of.

7 Q. Is there any issue under review as to
8 whether or not NUG projects will themselves have to
9 undergo an environmental assessment process similar to
10 the one we are engaged in here, not similar but
11 analogous?

12 A. I believe that's an issue between the
13 non-utility generators and the government authorities
14 who are responsible for environmental processes.

15 Q. May I take it then that that is not
16 an issue to which Ontario Hydro has given
17 consideration?

18 A. Not to my knowledge, though I do
19 believe that in Panel 5 there was testimony regarding a
20 class environmental assessment for hydraulic
21 non-utility generators and that Ontario Hydro was
22 assisting in that process.

23 Q. What about industrial cogen.

24 A. I don't know of anything with regards
25 to industrial cogen.

1 Q. Is one of the issues that is under
2 review the question of whether or not NUG emissions
3 ought to be included in Ontario Hydro's envelope of
4 emissions, if I can use that term?

5 MS. HOWES: A. It's certainly been
6 discussed but I don't think it's a planning issue at
7 this time.

8 Q. And it's not something as to which
9 you as planners have made any allowance, if I
10 understand it correctly?

11 A. What do you mean by allowance?

12 Q. The possibility that NUG emissions
13 will have to be included by Ontario Hydro in its
14 emissions envelope?

15 A. In these plans we did not assume
16 that.

17 Q. And is there any issue which has
18 arisen with respect to, if I can use the term,
19 privatization of the power supply system through NUGs.
20 that's undergoing review with Ontario Hydro?

21 MR. SNELSON: A. My understanding is
22 that there have been statements from the provincial
23 government indicating that privatization of Ontario
24 Hydro is not under consideration.

25 Q. I didn't meant privatization of

1 Ontario Hydro as a whole but, in effect, if one
2 generates electricity through a NUG, one has privatized
3 a part of the electricity generation system; hasn't
4 one?

5 A. One could look at it that way.

6 Q. And is that an issue which is under
7 review and is referred to in this passage in the NUG
8 update?

9 A. Not to my knowledge.

10 THE CHAIRMAN: Would that include the
11 discussion about wheeling that we had, would that fit
12 into that?

13 MR. SNELSON: There are issues with
14 regard to wheeling and I'm not clear at the moment as
15 to whether there is further activity at this time.

16 MR. HAMER: Q. We heard testimony in the
17 NUG panel about the use of heat rates to devise
18 preferential rates which Ontario Hydro would pay for
19 NUG generation. Which one would be the best to speak
20 to that topic, Mr. Snelson?

21 MR. SNELSON: A. I can start because I
22 was on Panel 5.

23 Q. All right. And the effect of using
24 that heat rate mechanism in the rate structure, or one
25 effect, is to reduce the volume of gas burned to get

1 the same electricity; correct?

2 A. Yes, that is the same as increasing
3 the efficiency of use of natural gas.

4 Q. Right. And if one reduces the amount
5 of gas burned to get the same electricity, one reduces
6 the emissions?

7 A. That is correct, and I believe I
8 referred to that earlier.

9 Q. And that's one of the purposes of
10 providing that favourable rate?

11 A. I'm not sure that the reduced
12 emissions are necessarily the key part, but the
13 improved efficiency is definitely a factor.

14 Q. Well, one doesn't pursue efficiencies
15 for the sake of being efficient, one pursues them to
16 achieve some end?

17 A. And the greater efficiency achieves a
18 more efficient use of natural resources.

19 Q. All right. And less emissions?

20 A. And it also would probably result in
21 less emissions.

22 Q. And it's appropriate for Ontario
23 Hydro to attempt to influence NUG emissions by using
24 that mechanism; fair?

25 A. As I said, NUG emissions are not the

1 primary driving factor, the efficiency and the use of
2 resources was the bigger factor.

3 Q. But it is a factor?

4 A. The knowledge that the emissions were
5 not great, that there were not large emissions from
6 non-utility generators of acid gases, is a factor.

7 Q. All right. And it's appropriate for
8 the Environmental Assessment Board to consider the
9 effects of policies like the heat rate policy on
10 emissions by NUGs?

11 A. I'm not sure that I would presume to
12 say what is appropriate for the Board to look at, but I
13 think they are relevant to the issues that we are
14 discussing.

15 Q. All right. Well, in assessing an
16 environmental assessment of your various alternate
17 plans which you are now presenting, it's appropriate;
18 is it not, to have regard to the emissions which are
19 produced not by Ontario Hydro's own facilities but by
20 the NUGs?

21 MS. HOWES: A. That's true, and I do
22 have in, I think it's 452G, shown emissions from the
23 NUGs and these were calculated for NUGs.

24 [12:48 p.m.]

25 Q. And that was my next question. Is it

1 not 452E? Perhaps you are right and I'm wrong.

2 A. Is it E? It could be E. I will have
3 to check.

4 Q. But that's why you put that data in
5 your materials.

6 A. The reason we included it?

7 Q. Yes.

8 A. Yes, as Mr. Snelson has indicated.

9 Q. And those graphs, and we can turn
10 them up. I think they are in my package somewhere.
11 But as I understand it, they relate to the median load
12 growth case; correct?

13 A. They are median. But I believe there
14 are also charts for upper --

15 Q. I'm looking at page 70 of my
16 materials.

17 A. Yes, those are medians.

18 Q. And would it be possible to provide
19 us with a set of graphs like that you from page 70
20 right through to page 81 of my package which reflect an
21 upper load growth case and a branch upper load growth
22 case?

23 THE CHAIRMAN: Those are two different
24 things.

25 MR. HEINTZMAN: Yes.

1 THE CHAIRMAN: Does D-1 have the first
2 part?

3 MS. HOWES: 452G - I was right on one
4 letter - has the NUGs emissions for upper. And those
5 are on pages 63 through 73.

6 MR. HEINTZMAN: Our copy didn't get page
7 numbers.

8 MS. HOWES: Lower right corner, there are
9 no page numbers, essentially the back end. The last 10
10 pages. And you will see it says Upper Nuclear, No
11 Approvals, Update Upper.

12 MR. HEINTZMAN: Perhaps we could confer
13 over lunch and I'll come back to that.

14 THE CHAIRMAN: They may not, I don't
15 think they analyzed the branch upper.

16 MS. HOWES: That's true.

17 MR. HEINTZMAN: Q. So it wouldn't be
18 possible for you to provide us with similar
19 presentations for a branch upper case.

20 MS. HOWES: A. No. 1

21 Q. Now, could we go to page 129 of my
22 package. And this is a cost table for the enhanced
23 case in the Update; correct, Mr. Snelson or Mr.
24 Dalziel?

25 MR. DALZIEL: A Yes, it is.

1 Q. And in that case you spend about 4.6
2 billion on emission controls, which is about 1-1/2
3 billion more than you spend in the non-enhanced cases,
4 if I can call them that. And I'm referring back to
5 pages 105 and 116 in my package.

6 A. Without checking, that's probably the
7 right order of magnitude of the difference, yes.

8 Q. And the assumption underlying the
9 enhanced case is that Ontario Hydro has come under more
10 stringent environmental controls, whether self-imposed
11 or imposed by an outside agency through legislation;
12 is that correct?

13 A. I think it's more a case of looking
14 at what could be achieved if you went further. I'm not
15 sure that it anticipated just exactly what kind of
16 increased standards Hydro might set for itself or what
17 increased regulations.

18 Q. Well, in devising the case, you must
19 have had some idea how stringent to make the controls.

20 A. I think it was more a matter of
21 applying just additional controls than to see what the
22 effect was.

23 MS. HOWES: A. Generally, I would agree.

24 Q. But underlying that exercise is the
25 idea that Ontario Hydro continues to operate in an

1 environment in which concern over environmental issues
2 is ever increasing.

3 MR. DALZIEL: A. It would certainly
4 reflect that, yes.

5 Q. And in your cases, and perhaps you
6 have answered this already, Ms. Howes. In your cases
7 which are enhanced cases in terms of environmental
8 controls, am I correct in understanding that none of
9 the NUG projects were subjected to similar controls?

10 MS. HOWES: A. We did not assume any
11 additional controls for the NUGs.

12 Q. So you were assuming Ontario Hydro
13 operating under tighter restrictions and NUGs not.

14 A. No, I don't think that's a fair
15 statement. I think our contracts indicate we expect
16 the NUGs to meet whatever environmental regulations are
17 appropriate.

18 Q. Those are your existing contracts?

19 A. Yes.

20 Q. But in running those cases, did you
21 assume that future NUG developers would be subjected to
22 more stringent environment controls similar to the ones
23 that you had assumed for Ontario Hydro?

24 MR. DALZIEL: A. I think the way they
25 are modelled, the answer would be no. But as Ms. Howes

1 has said, in the future we would certainly be expecting
2 that the NUGs would have to comply with all regulations
3 which are applicable to them.

4 Q. Right. Well, my point is this. A
5 future NUG developer entering into such a contract with
6 you will have to consider the cost of environmental
7 control, correct?

8 A. That's correct.

9 Q. And if those increase, that will
10 increase his or her cost; correct?

11 A. They would tend to do that. And in
12 parallel with that, it may be that the increased
13 controls required on Hydro's system at that time would
14 also reflect in higher avoided costs.

15 Q. Perhaps.

16 A. Perhaps.

17 Q. But at the moment, if Ontario Hydro
18 is projecting its system on a more stringently
19 controlled basis but not projecting any particularly
20 more stringent controls for NUGs in terms of cost
21 structures, that makes the NUG option more attractive,
22 does it not? In terms of cost.

23 A. Strictly from a cost point of view,
24 it may do that.

25 Q. Right.

1 A. But again, as time wears on you may
2 have to reflect the new cost information as the
3 requirements and standards are changing.

4 Q. All right. But in terms of devising
5 a plan now and running the cases which you ran under
6 the rubric of enhanced environmental controls, you
7 didn't sit down and make any particular set of
8 assumptions about increased costs that NUG proponents
9 would incur by reason of more stringent controls
10 applied to them.

11 A. That's correct.

12 MS. HOWES: A. But just to add a further
13 point, we also, these controls were assumed for
14 coal-fired stations and nuclear stations and we didn't
15 anticipate that they would be NUGs offering coal fired
16 or nuclear options.

17 Q. What your plans do anticipate is base
18 loads NUG capacity; correct, Mr. Dalziel?

19 MR. DALZIEL: A. Yes. The NUGs are
20 modelled as base load.

21 Q. And a NUG plant run at 80 per cent
22 capacity produces electricity at 80 per cent capacity
23 factor.

24 A. Yes.

25 Q. And a nuclear plant run at 80 per

1 cent capacity produces electricity at an 80 per cent
2 capacity factor.

3 A. Yes.

4 Q. And in the enhanced case, if we look
5 down the column on page 129 to the purchase NUGs charge
6 of \$6.6 billion, that is about \$1.8 billion more to be
7 spent than in either of the fossil or nuclear cases;
8 correct?

9 A. Yes.

10 Q. And this case at page 129 that we are
11 looking at manages the NUG surplus; correct?

12 A. No, I don't believe it manages the
13 NUG surplus if I understand what you are getting at.

14 Q. Well, let me put it better.

15 A. The surplus is managed in a different
16 way. And I believe that the forecast of NUGs that is
17 used here is that which we would apply to an unmanaged
18 surplus forecast of NUGs.

19 Q. So this is a case in which the NUGs
20 are allowed to run free.

21 A. The NUGs would come in as projected
22 according to the forecast.

23 Q. On an unmanaged basis.

24 A. On an unmanaged basis.

25 Q. And we saw earlier in the unmanaged

1 cases you get higher NUG volumes.

2 A. Yes, that's right.

3 Q. And this case at page 129 also
4 assumes that rather than retrofitting some of the
5 Ontario Hydro plants with best available technology,
6 those plants are mothballed and replaced with DSM,
7 NUGs, and hydraulic; correct?

8 A. Not quite the way you have stated it.

9 Some plants are mothballed. In putting the case
10 together, it's assumed that while some of those plants
11 are mothballed, they would be retrofitted with improved
12 environmental controls and then brought back into
13 service when required.

14 Q. Well, could you look at page 120?
15 You see at the top of the page in paragraph 2.1, the
16 second sentence reads, the update enhanced case, and
17 that's the case we are talking about, offers one of
18 many potential methods of reducing the surplus
19 capacity. As an illustration, existing capacity,
20 although intended to be retrofitted with the best
21 available control technology, was mothballed in favour
22 of demand management NUGs and hydraulic energy.

23 Isn't that what this case did?

24 A. That's what it says. And I guess the
25 words "intended" may be throwing you a bit off as to

1 what was actually done in this case. And that the
2 Nanticoke station, for example, was mothballed, I think
3 in the period '98, '99 for example, brought back into
4 service over the years, I think, 2003 to 2008, I would
5 have to check.

6 But in that period while it was
7 mothballed, it is equipped with scrubbers and SCRs.

8 Q. We don't see that in the description
9 of the case here, do we?

10 A. Paragraph 2.2 down would explain
11 that.

12 MR. HEINTZMAN: Okay. That would
13 explain that. That would be a convenient point, Mr.
14 Chairman.

15 THE CHAIRMAN: We will adjourn until
16 2:30.

17 THE REGISTRAR: Please come to order.
18 This hearing will adjourn until 2:30.
19 ---Luncheon recess at 1:03 p.m.
20 ---On resuming at 2:30 p.m.

21 THE REGISTRAR: Please come to order.
22 This hearing is again in session. Be seated, please.

23 THE CHAIRMAN: Mr. Hamer.

24 MR. HAMER: Thank you, Mr. Chairman.

25 Q. Panel, we were looking at page 12 of

1 my package which was the cost table for the enhanced
2 plan, and we had observed that there was much more
3 money spent on NUGs in that enhanced plan than in the
4 other two plans in the Update, and we had also gone
5 over the fact that there had been no particular
6 technology constraints applied to NUGs in the enhanced
7 case.

8 And I want to ask whether the reason that
9 NUGs become more attractive in the enhanced plan is
10 that the emissions caused by NUGs are not counted
11 against Ontario Hydro's overall emissions for purposes
12 of running the case.

13 Is that correct, Mr. Dalziel?

14 MR. DALZIEL: A. I don't believe it is.
15 I think we mentioned, or at least I mentioned in my
16 direct evidence, that there are many different ways in
17 which a projected surplus could be managed, and the
18 enhanced case is showing a different way or another way
19 in which the surplus could be managed.

20 Q. Well, my understanding of the
21 enhanced case is not that it's designed to manage a
22 surplus, but that it is designed to meet more stringent
23 environmental controls; isn't that correct?

24 A. It was designed to have additional
25 controls on the existing system so as to reduce

1 emissions from the existing system and wastes and
2 effluents from the existing system.

3 Q. Exactly. And one of the ways in
4 which the model came up with to do that was to run more
5 NUGs; correct?

6 A. Having more NUGs would change the way
7 the existing system operates.

8 Q. And reduce the emissions?

9 A. Clearly it would reduce the energy
10 production from the existing system and it would reduce
11 emissions otherwise associated with that energy
12 production from the existing system.

13 Q. And it would increase the emissions
14 from the NUGs?

15 A. Yes, it would.

16 Q. But those increased emissions from
17 the NUGs aren't counted against Ontario Hydro's system
18 because they are outside Hydro's envelope?

19 A. That's correct.

20 Q. And another way of reducing the
21 emissions from Ontario Hydro's system, apart from
22 contracting out some of your emissions, would be to
23 enhance the technology applied to Ontario Hydro's
24 facilities; correct, even more than this enhanced case
25 calls for?

1 A. Yes, you can apply additional
2 controls to Hydro's existing system to reduce
3 emissions.

4 Q. But that would be more costly?

5 A. It would likely increase costs, yes.

6 Q. All right. So isn't the enhanced
7 case a case in which NUGs become more attractive
8 because you don't have to assume their emissions within
9 your envelope for purposes of the case, and you don't
10 have to assume enhanced technologies and, therefore,
11 costs applied to the NUGs, and that's an easy way out
12 to enhance your environmental performance?

13 MS. HOWES: A. If I could --

14 Q. I'm speaking of cost here.

15 MR. DALZIEL: A. I think we said before
16 lunch, if we haven't, that, yes, it would reduce the
17 costs of controls that you may have to apply on Hydro's
18 system if you were trying to achieve the same level of
19 emissions without the NUGs.

20 Q. So what the enhanced case does is it
21 increases spending on NUGs by \$1.8 billion but doesn't
22 presume any more intense environmental controls
23 attached to those NUGs?

24 A. That's correct.

25 Q. All right. And I'm just suggesting

1 to you that the reason for that increase in spending on
2 NUGs is it's attractive to do that from a cost point of
3 view rather than spending the money on your own
4 facilities which are within your emissions envelope.

5 MR. SHALABY: A. I think this case does
6 both of those measures, not one versus the other.

7 Q. Oh, I appreciate that there is
8 some --

9 A. The enhanced case has increased
10 environmental spending as well as increased purchases.
11 So I reject the notion that we went to the NUGs to
12 avoid environmental spending. That is not the case at
13 all. We do both, we increase environmental spending as
14 well as increase the purchases.

15 Q. Well, Mr. Shalaby, Mr. Dalziel has
16 just agreed that if instead of going to NUGs in the
17 enhanced case one simply spent even more in enhancing
18 Ontario Hydro's facilities environmental technologies
19 that would likely be a more costly case than the one
20 that we see here on page 129.

21 A. That's consistent with what I'm
22 telling you.

23 Q. And what I'm suggesting to you is
24 then obviously you chose a less costly alternative
25 which was to enhance spending on NUGs because their

1 emissions don't count against your overall emissions.

2 MR. DALZIEL: A. And I said that was not
3 the intent of this case.

4 Q. I didn't ask you what the intent was,
5 I said that's the effect of it.

6 A. That may be an effect of it.

7 Q. Yes. Right.

8 MR. SNELSON: A. The NUGs that are
9 included are mostly gas-fired generation which has
10 relatively low emissions and whether you count them in
11 Ontario Hydro's total or not they certainty get counted
12 in the provincial total picture and the emissions from
13 NUGs are relatively low, that is why they are
14 considered to be an environmental preferred source.

15 Q. Nonetheless they are not counted
16 against your emissions overall for purposes of counting
17 Ontario Hydro's overall emissions?

18 A. That is true, but I do believe that
19 we have shown in our evidence the emissions from NUGs
20 to complete the picture.

21 Q. Well, you have displayed them
22 separately, but the graphs that show Ontario Hydro's
23 overall system emissions don't include the NUG
24 emissions; isn't that correct, Ms. Howes?

25 MS. HOWES: A. That's true.

1 Q. All right.

2 A. But the numbers are available.

3 Q. Now, obviously in the enhanced cases
4 all of the new Ontario Hydro facilities are assumed to
5 be subject to the environmental assessment process;
6 correct?

7 A. That's correct.

8 Q. And those costs get rolled into the
9 costs of the Ontario Hydro components of the overall
10 generating system; correct?

11 MR. DALZIEL: A. Yes.

12 Q. And the NUGs are assumed, I think we
13 established before lunch, not to be subject to
14 environmental assessment process.

15 MS. HOWES: A. Well, I don't think we
16 said not. In my direct evidence I indicated that
17 municipal solid waste NUGs are required to do EAs, I
18 also -- and Mr. Snelson had reiterated that I think
19 there is currently work under way to look at a Class EA
20 for small hydraulics under five megawatts.

21 Q. Well, with those caveats, the rest of
22 the NUG capacity is not presumed to require
23 environmental assessment approval in the enhanced or
24 the ordinary cases in the Update?

25 A. Under the Environmental Assessment

1 Act of Ontario, no.

2 Q. Right. So there's been no cost
3 allowance made for that possibility?

4 A. I'm assuming not.

5 Q. Is that correct, Mr. Dalziel?

6 MR. DALZIEL: A. That's correct.

7 Q. And if they were to be subjected to
8 environmental assessment, and I'm referring to things
9 like industrial cogen and other forms of gas-fired
10 NUGs, that would have an impact on the developers'
11 costs?

12 A. Yes.

13 Q. And on their lead times?

14 A. Likely.

15 Q. And overall it would have the effect
16 of rendering the achievement of the NUG targets more
17 uncertain?

18 A. It would have an impact on the NUG
19 forecast.

20 Q. Would you agree, Mr. Snelson, that
21 the American experience provides some useful precedence
22 in terms of predicting the behaviour of a non-utility
23 generation industry?

24 MR. SNELSON: A. I don't think I can
25 agree to that in its generality. I would have to know

1 what particular precedence it was that you were
2 referring to.

3 Q. All right. Would you agree that
4 there are some useful precedents in U.S. experience or
5 do you just ignore U.S. experience?

6 A. We don't ignore U.S. experience but
7 we don't necessarily assume that the situation here is
8 the same or will repeat or otherwise follow U.S.
9 practice precisely.

10 Q. I am advised that in the United
11 States, and particularly in California, utilities are
12 required, as part of their regulatory process, to
13 include the environmental impacts of NUG projects
14 within their envelopes in the same sense as I have been
15 using that term here this afternoon.

16 A. Are you familiar with that fact?

17 A. I am not.

18 Q. Is any other panel member familiar
19 with that?

20 MS. HOWES: A. No.

21 Q. All right. Does any panel member
22 have any familiarity with environmental regulation in
23 the United States?

24 MR. SHALABY: A. Again, it's such a
25 general question. The details we may not be familiar

1 with, but the general outline of what they are doing is
2 something we monitor from time to time.

3 Q. All right. Does any panel member
4 have any awareness of whether or not American
5 regulatory authorities are tending more and more to
6 include the environmental impacts of NUG projects
7 within the impact envelope of the utilities served by
8 the NUGs?

9 A. The situation in the States is --
10 perhaps you can -- in the spirit of describing the
11 comparison...

12 Q. Well, I just want an answer to the
13 question, first of all.

14 A. Well, the question is that many of
15 the planning is done in a public utility commission or
16 an energy commission that looks at a number of
17 utilities not just one. In California, for example,
18 there are five or six electrical utilities. And they
19 look also at the non-utility generation, the commission
20 looks at all sources of electricity rather than at one
21 utility source or another.

22 So from that perspective, the inclusion
23 of the non-utility generation costs and impacts on the
24 environment is an appropriate one.

25 Q. All right.

1 A. And is done, to my knowledge.

2 Q. Thank you. An undertaking was given
3 to Mr. Mark with respect to a graph that appeared in
4 the original DSP but was not repeated in the Update,
5 and I would like to just extend or perhaps merely
6 clarify that undertaking somewhat.

7 And I believe it was you, Ms. Howes, that
8 gave the undertaking. The graph is at page 46 of my
9 package, and the undertaking was given the No. 684.9
10 and it was given in Volume 151, page 26680 of the
11 transcript.

12 And basically it was to provide an update
13 for that graph including the notes. Do you recall that
14 Ms. Howes?

15 MS. HOWES: A. Yes, that's correct.

16 Q. And I simply wanted to ensure that
17 the update will provide that graph for each of the six
18 cases in the Update as well as the notes to go with
19 that. Is that agreeable?

20 MR. DALZIEL: A. When you are referring
21 to the six cases, those are the six cases associated
22 with Exhibit 452?

23 Q. Correct.

24 A. And we essentially would need to
25 provide this figure for two conditions, surplus

1 managed/surplus unmanaged.

2 Q. Which is 3 plus 3 I think; right?

3 A. But with NUGs as a common component
4 between many of the cases, what I'm suggesting is just
5 two figures will supply all the information you need.

6 A figure with the NUG emissions with
7 surplus management and a figure with the emissions with
8 no surplus management assumptions.

9 Q. But one is a fossil and one is a
10 nuclear.

11 THE CHAIRMAN: But I think what Mr.
12 Dalziel is saying is that they have common NUG
13 components.

14 MR. DALZIEL: For example, the figure
15 with managed -- is that clear?

16 MR. HAMER: Q. Yes, I understand now.

17 MR. DALZIEL: A. Okay.

18 MR. HAMER: Thank you, Mr. Chairman.

19 Q. Just one point on the heat rate
20 calculation which is used for preferred NUGs. I
21 believe there was discussion in the NUG panel about
22 either a 6,000 BTU heat rate or a 5,600 BTU heat rate,
23 something like that.

24 Are you familiar with that, Mr. Snelson
25 or Mr. Shalaby?

1 MR. SHALABY: A. The units are BTUs per
2 kilowatthour.

3 Q. Right.

4 A. And I think the number is 6,000 is
5 the --

6 Q. That's the break point for the
7 preference to start decline?

8 A. That's my recollection.

14 MR. SNELSON: A. I think that you
15 essentially had that in the figure that you were
16 looking at this morning.

17 [2:45 p.m.]

18 Q. The tables with the columns having
19 off the preferred and the non-preferred?

24 Q. That table doesn't tell us about the
25 existing NUG capacity, as I understand it.

1 A. By existing do you mean the NUG
2 capacity that existed before Ontario Hydro started its
3 programs?

4 Q. No, that exists as of today.

5 A. There are two categories of existing,
6 just to be plain, one is that there is about 1,200
7 megawatts of non-utility generation that has existed
8 for many, many years and predated Ontario Hydro's NUG
9 program.

10 Q. And that doesn't meet this heat rate?

11 A. A lot of it that is cogeneration
12 would meet that heat rate is my expectation.

13 Q. Then the second component?

14 A. The second component I think what is
15 already in-service tends to get reported as part of the
16 NUG program, and so it gets captured in the NUG
17 division's reports and so on that they produce.

18 Q. I just want to know what the answer
19 is, how much of the existing NUG capacity in the second
20 category meets that heat rate.

21 A. Beyond what we discussed this
22 morning, I don't think I can help you right now.

23 Q. Would you undertake to provide us
24 with that information, both for the first and the
25 second components of the NUG capacity which exists

1 today?

2 A. If information is available, we will
3 try and find it for you.

4 Q. That would be available because you
5 would have to know that for purposes of fixing the
6 rates to be paid to those producers; correct?

7 A. The category that existed before we
8 became active, then we wouldn't have to know that.

9 For the category that is a result of our
10 programs, prior to that being a requirement of our
11 programs, any contracts that were signed, the reason
12 you have given wouldn't be a reason for us to know that
13 information, but we may very well know it just from a
14 general description of the project and its
15 characteristics.

16 Q. Why wouldn't you know it for purposes
17 of fixing the rates?

18 A. Because the differential between the
19 rates with and without meeting that heat rate condition
20 was something that wasn't in place from the start of
21 our NUG division program.

22 Q. Has it not been applied to any
23 existing NUG project then?

24 A. I am just trying to remember when it
25 came into effect. I believe it was probably sometime

1 in -- I am trying to remember whether it came into
2 effect in 1990 or 1991. I believe it was probably
3 1990.

4 Q. So it doesn't apply to any existing
5 NUG project?

6 A. It wouldn't have applied to projects
7 that were negotiated before it came into effect.

8 Q. So it doesn't apply to any existing
9 NUG project?

10 A. As I say, it wouldn't apply to any
11 that were negotiated before it came into effect. There
12 may be some that were negotiated after it came into
13 effect that either are in-service or close to
14 in-service. It's a question of timing here.

15 Q. Well, you look that information up
16 for us.

17 A. Yes.

18 MR. HAMER: Could that be given an
19 undertaking number?

20 THE CHAIRMAN: 684.

21 THE REGISTRAR: 684.19.

22 ---UNDERTAKING NO. 684.19: Ontario Hydro undertakes to
23 provide what proportion of existing NUG
24 capacity in Ontario is achieving a 6,000
25 BTU heat rate and what are Ontario
 Hydro's projections as to the proportion
 which will achieve that heat rate.

MR. HAMER: Q. Now, could we look, please, to page 41 of my package which is an excerpt from the DSP strategy appendix to Exhibit 3. Could we refer, Mr. Snelson, to paragraph 5.1.1 where it says:

Major increases in supply will be provided by low cost options available to meet the need after allowing for the effects of demand management and non-utility generation.

MR. SNELSON: A. Yes, and I indicated that in my direct evidence.

Q. And would you be aware or would any other panel member be aware of the fact that in American utility practice it is common for NUGs to be required to compete for planning purposes and in day-to-day operations with utility generation, and it's a question of may the best competitor win, rather than one being given a priority over the other?

A. I know that in some U.S. jurisdictions, and I couldn't name them, there are opportunities for the utility to bid in its own bidding

1 process for non-utility generation.

2 Q. And is there any reason that that
3 approach ought not to be applied in Ontario?

4 A. There are some potential difficulties
5 with that process.

6 Fundamentally, there is no more reason
7 why they can't applied here than somewhere else.

8 Q. You would agree with me that NUG
9 generation and utility generation are both different
10 methods of achieving the same end which is to supply a
11 given quantity of capacity and energy?

12 A. Yes.

13 Q. And as alternative methods there is
14 no inherent reason that they shouldn't simply compete
15 against one and other, rather than one being given a
16 priority over the other?

17 A. In the sense that there is no
18 inherent reason that they shouldn't compete, and in a
19 sense that competition is there through the avoided
20 cost process which compares the costs of supplying the
21 power that a NUG would produce from some other sources
22 to the cost of that NUG itself.

23 Q. But the avoided cost process itself
24 has its own difficulties, does it not?

25 A. It has some difficulties.

1 Q. And you have to apply what I would
2 term, without being pejorative, somewhat arbitrary
3 preference premiums and things like that?

4 A. You don't have to apply arbitrary
5 preference premiums but we have applied a preference
6 premium.

7 Q. That gets you to a certain result,
8 though, doesn't it?

9 A. That is to provide a preference for
10 certain preferred technologies.

11 Q. Right.

12 And in the early demand/supply documents
13 going back into the late 1980s, and without getting
14 them all out and going through them page by page, we
15 don't see this kind of priority assigned to NUGs that
16 we now do in paragraph 5.1.1, do we?

17 All options were assessed and compared
18 with one another?

19 A. I would have to go back and check the
20 wording of the draft strategy to see whether that was
21 the same. Quite honestly, I forgot the precise wording
22 in the draft strategy.

23 Q. I think we will see that the draft
24 demand/supply plan strategy is the first document at
25 which this priority appears, but that there are earlier

1 documents which didn't employ that concept of
2 prioritizing NUGs and demand management over everything
3 else.

4 A. You are correct that the draft
5 strategy, which is Exhibit 66 on page 11-24, element
6 5.1 reads:

7 Major increases in supply will be
8 provided by the lowest cost supply or
9 purchase options available to meet the
10 need after allowing for effects of demand
11 management of independent generation.

12 As I think the idea of priority of
13 independent generation which we subsequently called
14 non-utility generation, that that was encompassed in
15 the draft strategy.

16 Q. And would you accept it that it
17 doesn't appear, for example, in the demand/supply
18 option study of 1986 which is Exhibit 57?

19 A. Which of the documents on the option
20 study is that?

21 Q. It's called report 652 SP, February
22 1986.

23 A. Is that the initial review of the
24 options? Is that the one you handed out yesterday?

25 Q. It's the option study itself. It's

1 Exhibit 57.

4 Some of these preferences that are
5 encompassed in the draft strategy were the results of
6 our public consultation program with respect to the
7 demand/supply option study.

8 So the documents that started the option
9 study and the public consultation were a starting
10 point, and then we modified and produced the strategy
11 taking into account some of the things that we had
12 heard through that consultation process, and then they
13 were subsequently revised again as a result of the
14 consultations surrounding the draft strategy before the
15 final strategy was produced.

16 Q. And in formulating its strategy,
17 Ontario Hydro made the decision to apply that priority?

24 Q. No, but you put it in, they reviewed
25 it and you have kept in ever since.

1 A. Yes. These were certainly issues
2 that were quite lively topics in front of the Select
3 Committee of the Legislature.

4 Q. And you don't suggest, do you, that
5 this Environmental Assessment Board is in any way bound
6 by that strategy to adopt that priority?

7 A. I think that is probably a question
8 of law as to what binds that Environmental Assessment
9 Board.

10 Q. Well, you don't make that suggestion.

11 A. We were presenting the information on
12 non-utility generation and demand management and the
13 supply options. Full range of information.

14 Q. All right. But you don't say that
15 because you have devised this strategy in the past and
16 that it has been reviewed by others, that that gives
17 any reason not to rank and compare all options on an
18 equal playing field rather than giving some priority
19 over others.

20 A. Well, we again come to the legal
21 question. But my understanding of the legal results is
22 that the panel has to have all the information in front
23 of it and isn't bound by previous recommendations of
24 Select Committees of the Legislature.

25 Q. Or any priorities that anyone has

1 thought advisable?

2 THE CHAIRMAN: This particular strategy
3 though is part of the process that we are reviewing; is
4 that not right?

5 MR. SNELSON: I believe so.

6 THE CHAIRMAN: It's never been reviewed
7 before, has it, by this particular body?

8 MR. SNELSON: I don't believe it's been
9 reviewed by the Environmental Assessment Board.

10 THE CHAIRMAN: It's only been reviewed by
11 the Select Committee of the Legislature.

12 MR. SNELSON: It has been reviewed by the
13 Select Committee of the Legislature and there has been
14 no other reviews in front of the Environmental
15 Assessment Board.

16 MR. HAMER: Q. Would you agree, Mr.
17 Snelson, that one of aims of the DSP as now updated is
18 to enhance plan flexibility?

19 MR. SNELSON: A. Yes.

20 Q. So as to be able to adapt to
21 circumstances as they change?

22 A. Yes.

23 Q. And could we turn to page 50 of my
24 package, please.

25 Perhaps Mr. Dalziel would be the

1 . appropriate recipient of this question.

2 THE CHAIRMAN: What is the source of this
3 particular... It's the plan analysis, Exhibit 6?

4 MR. SHALABY: It is, Mr. Chairman.

5 MR. HAMER: That's correct, Mr. Chairman.

6 Q. Mr. Dalziel, it's correct in running
7 the original cases for the DSP that NUGs were treated
8 as a single generating unit as it says at the top of
9 that page, and run at 80 per cent of installed
10 capacity?

11 [3:03 p.m.]

12 MR. DALZIEL: A. That's right.

13 Q. And was that practice or assumption
14 carried forward into the Update cases which were run?

15 A. Yes, it was.

16 Q. And if we go back two pages to my
17 page 48, we see that in the DSP modelling, I'm looking
18 at the third paragraph down, the third sentence.

21 And that was the practice in the DSP
22 cases?

23 A. Yes, it was.

24 Q. And it was again the practice in the
25 Update cases?

1 A. Yes.

2 Q. And not to go all through the
3 material on avoided costs again, but am I correct that
4 the cost structure referred to in that sentence is a
5 cost structure which is set at the time of the NUG
6 contract being entered into?

7 A. The costs that are used reflect the
8 average prices of the contracts that we have.

9 Q. All right. So that there is no
10 suggestion that NUG capacity is run or not run based on
11 whether it meets that day's avoided cost; correct?
12 Once you have got the NUG contract, you run it at 80
13 per cent?

14 A. It is modelled that way in the
15 developing and running of the cases.

16 Q. For planning purposes.

17 A. For planning purposes, that's right.

18 Q. And to achieve the economics of the
19 plan with respect to the NUG component as it evolves
20 over time, Hydro will then have an incentive to run NUG
21 capacity at as high a capacity factor as it can get;
22 correct?

23 MR. SNELSON: A. I believe there was
24 some testimony in this regard on Panel 5 where Mr.
25 Vyrostko indicated that some NUG contracts, and it may

1 be all NUG contracts, I would have deferred to his
2 testimony in this regard, has provision for curtailment
3 for a certain number of hours per year if the value of
4 the electricity to Ontario Hydro is very low.

5 Q. But I think it was established by Mr.
6 Vyrostko, as well, that it's not dispatchable
7 generation in the sense that that term has been defined
8 previously.

9 A. It generally has very limited, if
10 any, dispatchability.

11 Q. So in general terms, once you have
12 got the NUG you run it at 80 per cent capacity figure,
13 subject to what Mr. Snelson just said, is that correct,
14 Mr. Dalziel?

15 MR. DALZIEL: A. In our planning we do.

16 Q. And in practice as they come
17 onstream, that will be done, as well.

18 A. The details of how they operate in
19 practice I'm not familiar with.

20 Q. But the reason for doing it that way
21 for planning purposes is that the developers have
22 typically required their projects to be base loaded;
23 correct?

24 A. I believe so.

25 Q. And that's what makes their projects

1 economic?

2 A. Yes.

3 Q. And as the NUG panel testified last
4 fall, I believe I summarize it fairly, Hydro would like
5 to have dispatchable NUG generation if it can get it;
6 correct?

7 MR. SNELSON: A. Yes. I think that your
8 comment about why they are non-dispatchable applies to
9 certain projects. But for cogeneration projects, real
10 cogeneration projects, then the project economics
11 really require that the electricity and steam demands
12 be met together. And so the steam demand and the
13 pattern of steam demand tends to be more the driving
14 force on when it is operated rather than the desire to
15 dispatch or not dispatch from an electricity system
16 point of view

17 Q. But the reason that there was no
18 dispatchable generation proposed by project managers or
19 investors was that there wasn't any value to the
20 proponent to put dispatch forward, and to make the
21 projects economic they had it to operate base loaded.
22 That's what Mr. Vyrstko testified in Panel 5.

23 A. Yes, he did. But I think we have a
24 lot of work to do to work out the type of business
25 arrangements that would make an appropriate sharing of

1 costs and benefits for a truly dispatchable non-utility
2 generator.

3 Q. And those economics have not been
4 worked out today anymore than they had last fall when
5 the NUG panel testified.

6 A. I don't believe we have anything much
7 to add to what we said at that time.

8 Q. So if Hydro is still uncertain as to
9 whether or not NUG proponents can put forward
10 dispatchable generation that would be economic for them
11 to enter into.

12 A. I think that we only expect and look
13 for dispatchability when you start to go beyond the
14 preferred cogeneration projects with well matched
15 electricity and heat loads, and that's principally what
16 our forecast is based upon.

17 When you start to go beyond that and you
18 are going into overbuilt cogeneration or major supply
19 NUGs, that is the time when I think it's important that
20 Ontario Hydro start to insist upon and work out the
21 right business arrangements for those to be
22 dispatchable.

23 Q. Well, if Ontario Hydro could get the
24 existing quantities of NUG generation which it is now
25 projecting to be dispatchable, it would want to do

1 that, would it not?

2 A. Yes, but I don't think it is
3 realistic to do so where they are cogeneration
4 projects, just because of the very nature of the
5 projects.

6 Q. Well, in the sense that the NUG
7 capacities in the updated plans are assuming that the
8 NUGs are running at 80 per cent capacity figure
9 regardless of cost once the project is up and running,
10 that doesn't contribute to plan flexibility, does it?

11 A. It doesn't contribute particularly to
12 operating flexibility.

13 Q. Yes.

14 A. When we are talking about planning
15 flexibility, we are talking about other types of
16 flexibility, as well.

17 Q. All right. But at this point in
18 terms of day-to-day flexibility, you don't know whether
19 you can afford to pay enough to get dispatchable NUG
20 generation, i.e., to pay enough to persuade the NUG
21 developers to provide it to you.

22 A. We do not. And the overbuilt
23 cogeneration major supply NUGs are not a large part of
24 our forecast.

25 Q. And are you aware that in California

1 for one U.S. jurisdiction when the utilities began to
2 require dispatchability in NUG projects, investors were
3 much less attracted to the NUG concept than they had
4 been when they had must-run contracts.

5 A. I am not particularly aware of that.
6 But I do expect that type of result depending on the
7 sort of contracts that are developed. And, for
8 instance, I believe in West Virginia, I think is the
9 state, they have had quite considerable success in
10 getting dispatchable NUGs, as long as you make the
11 business arrangements right.

12 If you just pay a flat rate per unit of
13 energy generated, then the economics of dispatchability
14 is going to be very poor. But if you pay a rate that
15 covers a cost for capacity being available, whether or
16 not it's operated, such that it covers the developers
17 fixed costs and you pay an energy rate when it is used
18 that is related to its fuel costs, its operating costs,
19 then that's the sort of business arrangement that can
20 make dispatchability attractive to both the NUG and to
21 the utility.

22 Q. But what you don't know is whether
23 that equation will produce something that is within
24 Ontario Hydro's avoided cost, correct?

25 A. At this point and time we haven't

1 explored those sorts of avenues to know that answer.

2 Q. And do I understand your answer a
3 moment ago to be that you had some awareness of
4 something that happened in West Virginia but you are
5 not aware of what happened in California?

6 A. I'm not personally aware of the
7 California situation in that regard.

8 Q. Could we turn, please, to Exhibit 693
9 which Mr. Heintzman put in a day or so ago.

10 A. Which one is that?

11 Q. It's the EPRI paper entitled
12 Assessing Future Supply and Demand Uncertainties. And
13 Mr. Heintzman reviewed much of this paper with you.
14 And it's, in general, a discussion of generation supply
15 and demand based on the United States experience. And
16 I would like to take you to page 7 of that document.

17 And you will see at the bottom of the
18 page there is a heading which reads:

19 The role of non-utility generation in
20 meeting future customer needs is
21 potentially large but highly uncertain.

22 Would you accept that to be a fair
23 characterization, Mr. Snelson?

24 A. I think there is increasing
25 confidence that the non-utility generation industry can

1 provide a substantial proportion of electricity
2 supplied in both the States and in Canada.

3 Q. But you would also accept that there
4 is a high degree of uncertainty as compared with a
5 Hydro-built source of generation?

6 A. There are different sorts of
7 uncertainty. I'm not sure I would accept that there is
8 a higher degree of uncertainty.

9 Q. Well, you would accept that there is
10 a higher degree of uncertainty as to whether or not the
11 facility is physically going to be built with a NUG
12 than with a Hydro financed and constructed project,
13 would you not?

14 A. That's a very delicate subject. We
15 are just in the situation of having built a major
16 facility and it's not generating power.

17 Q. All right. But in the long-term you
18 would accept that a Hydro-built and financed project is
19 more certainly going to be there in the future than one
20 with a contracting party over whom Hydro has no
21 control. Isn't that fair?

22 A. I believe some of these uncertainties
23 were discussed in Panel 5. And that yes, there are
24 some uncertainties associated with that. And we do
25 take some efforts in our contracts to protect ourselves

1 against some of those uncertainties

2 Q. But those are purely contractual
3 arrangements.

4 A. We have in many of our contracts
5 provisions that if the non-utility generator goes out
6 of business that we can take over his facilities and
7 use them to generate power.

8 Q. Assuming they have been built.

9 A. Assuming they have been built, yes.

10 Q. And if they haven't been built,
11 there's no facility for you to take over; correct?

12 A. That is correct. I don't believe
13 that has been a problem to date.

14 Q. It hasn't been a problem where?

15 A. Well, I don't believe that's been a
16 problem to date of having had a contracted NUG who
17 hasn't fulfilled his contract in building his facility.

18 Q. Are you speaking of Ontario only or
19 elsewhere?

20 A. Ontario only.

21 Q. So you are not aware of what's
22 happened in other jurisdictions where NUG contracts
23 have been contracted for.

24 A. In some other jurisdictions, I think
25 you are probably referring to California. There has

1 been a very large situation of very loose contracts
2 being drawn up where, in fact I think the California
3 utilities have at times been encouraging their
4 non-utility generators not to live up to their
5 contracts.

6 Q. And would you agree with the authors
7 of this article, continuing on page 7,

8 That the expected contribution from
9 non-utility generators is the most
10 uncertain both in the downside risk that
11 the contracted supply will fail to
12 materialize and in the potential for
13 independent producers to supply greater
14 than expected demand for electricity
15 services.

16 So they seem to be saying --

17 THE CHAIRMAN: Mr. Heintzman asked
18 exactly the same question yesterday.

19 MR. HAMER: I'm sorry.

20 MS. PATTERSON: Mr. Shalaby answered.

21 MR. HAMER: I'm sorry. I thought I
22 checked that, Mr. Chairman. I'll withdraw that.

23 THE CHAIRMAN: I don't know if it was
24 exactly the same question, but it was the same
25 substance.

1 MR. HAMER: I apologize. I was here,
2 too.

3 THE CHAIRMAN: So you can look it up in
4 Volume 154.

5 [3:17 p.m.]

6 MR. HAMER: Q. Mr. Snelson, your current
7 policy, as I understand the NUG update, is to give
8 preference to NUGs which use renewable resources or
9 high-efficiency energy conversion; is that correct?

10 MR. SNELSON: A. Yes.

11 Q. And would you agree with anyone who
12 said that at present there is virtually no activity in
13 the renewable and high efficiency sectors?

14 THE CHAIRMAN: Are you talking about
15 Ontario now?

16 MR. HAMER: Yes.

17 MR. SNELSON: I believe that the evidence
18 of Panel 5 was that quite a lot of the renewable
19 projects were progressing quite slowly.

20 MR. HAMER: Q. Well, would you agree
21 with those that say there's virtually no activity in
22 the renewable and high-efficiency sectors?

23 MR. SNELSON: A. I'm saying that I'm
24 aware of a low level of activity in the renewable
25 sector.

1 Q. What about the high-efficiency
2 sector?

6 Q. I didn't use the term low you did. I
7 said no activity, virtually no activity.

10 Q. All right. And I take it then you
11 wouldn't agree that at present the NUG industry has
12 ground to a halt?

16 Q. Well, I provided you with one of
17 those articles, and that was the Independent Power
18 Producers Society of Ontario Newsletter which is called
19 IPPSO Facto, and I have provided copies to the witness
20 panel and to the Board.

21 And you have had a chance to look at the
22 article by IPPSO's president, Mr. Ander, which is at
23 page 3 of that newsletter which I have excerpted for
24 exhibit purposes.

25 THE CHAIRMAN: Should we mark it as an

1 exhibit?

2 MR. HAMER: Yes, please, Mr. Chairman.

3 THE REGISTRAR: 699.

4 ---EXHIBIT NO. 699: Excerpted article by Mr. Ander
5 from IPPSO Facto, Independent Power
Producers Newsletter.

6 MR. HAMER: Q. And do you see that in
7 the editorial headed The Hickling Report, A Formula for
8 Ontario Jobs, Mr. Ander has written in the right-hand
9 column, about halfway down there's a paragraph that
10 begins:

11 "The Ontario NDP was elected on a
12 platform that included greening energy
13 policy. Recent circumstances and
14 actions of Ontario Hydro have ground the
15 NUG industry to a halt."

16 Do you agree with Mr. Ander's statement
17 there?

18 MR. SNELSON: A. No.

19 Q. And I take it you would disagree with
20 his statement that there is virtually no activity in
21 the renewable and high-efficiency sectors?

22 A. The reason I'm disagreeing - and I
23 think I know what he's referring to - is that we are
24 continuing negotiations for 13 projects which is
25 probably the largest amount of non-utility generation

1 being considered in Canada, we are proceeding with a
2 large number -- well, a large amount of existing
3 contracted capacity that will generate well over 1,000
4 megawatts of non-utility generation to come on line
5 through the next few years.

6 So in the pipeline, the negotiating
7 process and the construction process is probably the
8 largest amount of non-utility generation that has been
9 built over a relatively small number of years, and I
10 would consider that to be a high level of activity in
11 the non-utility generation industry.

12 I think what Mr. Ander is referring to is
13 that, because we are saying we are accepting no
14 proposals beyond those, then at this point in time the
15 next generation of projects are not likely to be coming
16 along, and that's the slowdown that he's referring to.

17 Q. Well, you continue to give preference
18 to generation which uses renewable resources; correct?

19 A. That is correct. And we are still
20 open for proposals in that regard.

21 Q. And to high-efficiency energy
22 conversion technology; correct? That's what the Update
23 says.

24 A. If you go to the Update, which I
25 think is exhibit --

1 Q. It's at page 58 of my bundle of
2 materials that I was referring to.

3 A. Well, it may not be the right pages
4 that you have. I don't know.

5 Q. I think the whole thing is there.

6 A. Okay. If you go to page 59--

7 Q. Yes.

8 A. --then you see the situation that I
9 was referring to, and it indicates that:

10 "Since the release of the DSP Update
11 a number of further actions have been
12 taken by Ontario Hydro. Negotiations
13 were reopened with the proponents of the
14 13 projects which were suspended in
15 December. The projects are being
16 renegotiated in an effort to delay
17 in-service dates and to meet the October,
18 1991 guidelines for efficiency and/or the
19 use of renewable resources. In some
20 cases, this will result in smaller
21 projects."

22 The next bullet starts:

23 "Discussions were terminated with
24 the proponents of about 40 projects
25 which had been submitted to Ontario Hydro

1 and had discussions suspended in
2 December."

3 And I believe that bullet contributes to
4 the slowdown that Mr. Ander is referring to.

5 Q. But there's nothing happening in the
6 area of renewable resources?

7 A. If you read the next bullet, it says:
8 "With respect to future proposals,
9 Ontario Hydro has decided to accept no
10 new proposals for projects over five
11 megawatts other than hydraulic and some
12 special projects until need for
13 generation is demonstrated. However,
14 Ontario Hydro will continue to accept
15 proposals for projects of 5 megawatts
16 or less, provided they meet the October,
17 1991 guidelines."

18 So what that indicates is that we are
19 still accepting projects for hydroelectric proposals
20 and other renewable proposals and we are accepting
21 proposals for projects that are less than 5 megawatts.

22 At this point in time we are not
23 accepting proposals for projects that are over 5
24 megawatts, even if they are high-efficiency
25 cogeneration.

1 Q. So there's nothing happening there?

2 A. Well, that's with respect to new
3 proposals. There is a very large body of generation
4 that is either negotiated and contracted or in this
5 negotiating process which is going to achieve most of
6 the target by the year 2000.

7 Q. For the managed surplus?

8 A. For the managed surplus case, and it
9 may very well be that when we have been through this
10 process we will have more under contract than the
11 managed surplus case shows.

12 Q. And there's nothing going on in
13 renewables, according to Mr. Ander.

14 A. Well, that is the area where I think
15 you go back to what was discussed in front of Panel 5
16 and I don't know what has changed since then.

17 We are open for business for renewables.
18 Some of the projects have had difficulties getting
19 approvals and so on, and that was discussed in Panel 5.

20 Q. And the president the Developers'
21 Trade Association says there's virtually no activity in
22 that area.

23 A. Well, beyond what I have said, I
24 can't confirm or deny his statement.

25 Q. Just to finish off on a general

1 point, would you agree, Mr. Snelson, that the Update
2 presents a method of carrying out the undertaking and
3 that is described in the Update document, Exhibit 452?

4 A. It describes the way in which we
5 believe is the best way of meeting the undertaking.

6 Q. All right. And it's your preferred
7 method?

8 A. Yes.

9 Q. All right. Now, in the Demand/Supply
10 Plan in Exhibit 3 and the associated documents, and
11 perhaps we could turn to that, and this is not in my
12 package, but I'm referring to Exhibit 3, page 17-1. Do
13 you have that, Mr. Snelson?

14 A. Yes, I do.

15 Q. The chapter heading is Demand/Supply
16 Plans, and then in the left-hand column under the
17 heading Summary of Planned Components, we see:

18 "Each of the three Demand/Supply
19 Plans is made up of common components
20 such as demand management, non-utility
21 generation as well as variable components
22 for major supply."

23 So that there were three plans proposed
24 there?

25 A. There were three variations on the

1 major supply plan which were considered to be
2 acceptable by Ontario Hydro, one of which was
3 preferred.

4 Q. One was preferred, Plan 15?

5 A. Yes.

6 Q. But they were described by Ontario
7 Hydro three demand/supply plans; correct?

8 A. Yes.

9 Q. And each of those plans was an
10 alternative method of carrying out the undertaking;
11 correct, and you had a preferred method?

12 A. They were alternative ways of
13 carrying out the undertaking and we had a preferred
14 one, yes.

15 Q. Well, you use the word ways, I use
16 the word method. Isn't that what Ontario Hydro used,
17 the word method, in Chapter 19 at page 19-3?

18 A. Yes.

19 Q. One alternative method was Plan 22?

20 A. Yes.

21 Q. And as far as the Update is
22 concerned --

23 MRS. FORMUSA: Perhaps I should just
24 interrupt. It reads:

25 "One alternative method of carrying

1 out the undertaking is the Program
2 associated with Candidate Plan 22."
3 MR. HAMER: All right. I didn't mean to
4 attach --

5 MRS. FORMUSA: No, no, I know you didn't.
6 I just thought...

7 MR. HAMER: Q. What I would like to ask,
8 Mr. Snelson, is: What are the alternative methods to
9 carrying out the undertaking, and by alternative, I
10 mean alternative to the method which is now proposed in
11 the Update?

12 MR. SNELSON: A. We have discussed a
13 very wide range of demand and supply options which are
14 all alternatives to the approvals that we are
15 requesting.

16 Q. That's an alternative to the
17 undertaking, but what are the alternative methods to
18 the plan which you now propose in the Update document
19 Exhibit 452?

20 A. I think you could describe the
21 enhanced plan as an alternative method to that.

22 Q. The original demand/supply documents,
23 as we have seen at Chapter 17, had some variable
24 components for major supply.

25 A. Yes.

1 Q. And those were alternative methods of
2 carrying out the undertaking, different kinds of major
3 supply; correct?

4 A. They included some alternatives to
5 the approvals requested. Now, in this particular case
6 we are not seeking major supply approvals.

7 Q. But it's still the same undertaking
8 for which you sought approval at the outset of this
9 process?

10 A. I believe that's been the subject of
11 considerable debate--

12 Q. All right.

13 A. --on legal terms --

14 Q. But you don't say it's changed?

15 A. That's correct.

16 Q. And part of that undertaking is going
17 to be supplying Ontario's electricity needs down to the
18 year 2014; isn't it?

19 A. I think we maybe have to go back into
20 Chapter 19 and the specific words. The alternatives
21 that we are requesting approval of are not the full
22 amounts of facilities that are required to meet the
23 electricity demands to 2014. They weren't in '89 and
24 they are not now.

25 [3:32 p.m.]

1 Q. Well, are you saying that the Board
2 needn't have regard for Ontario's electricity needs
3 down to the year 2014?

4 A. No, I am not saying that.

5 Q. It's appropriate then for the Board
6 to have regard to the appropriate method of satisfying
7 those needs down to the year 2014?

17 A. In a sense, yes.

18 MR. HAMER: I am very much obliged.
19 Thank you, very much.

20 Mr. Heintzman sends his apologies for
21 going overtime.

22 THE CHAIRMAN: But he isn't here to face
23 the music. [Laughter].

24 We will adjourn for 15 minutes.

25 THE REGISTRAR: Please come to order.

1 This hearing will take a 15-minute recess.

2 ---Recess at 3:33 p.m.

3 ---On resuming at 3:50 p.m.

4 THE CHAIRMAN: Please be seated.

5 Mr. Shepherd?

6 MR. SHEPHERD: Good afternoon, Mr.

7 Chairman.

8 My cross-examination of Panel 10 is
9 limited to a few key areas because we have entered into
10 an agreement with the Moose River/James Bay Coalition
11 and the Coalition of Environmental Groups to split up a
12 number of the topics.

13 We also found that, although they weren't
14 party to the agreement, AECL managed to look after one
15 of our areas yesterday, and I don't think I have to
16 deal with it again.

17 As a result our anticipation is this
18 cross-examination will take between 8 and 12 hours, and
19 we will certainly be finished by sometime on Thursday.

20 Assisting my today is Mr. Jeff Passmore
21 who is known to you from previous appearances here.

22 For the purposes of this cross-
23 examination you may need to have the following exhibits
24 close by, obviously they are exhibits that are already
25 in play in this panel, Exhibit 74, which is the Demand/

1 Supply Planning Strategy; Exhibit 70, which is the
2 Draft Demand/Supply Planning Strategy; Exhibit 68 which
3 is the report of the Electricity Planning Technical
4 Advisory Panel, EPTAP, and Exhibit 71 which is Volume 1
5 of the 1989 report of the Ontario Select Committee on
6 Energy.

7 We may also refer to Exhibit 592 which is
8 the new avoided cost tables, but I doubt whether anyone
9 will have to refer to it.

10 At present we have no new exhibits to
11 file or interrogatories or overheads to provide. I do
12 have a couple in reserve in case I need them.

13 CROSS-EXAMINATION BY MR. SHEPHERD:

14 Q. Mr. Snelson, it's correct, isn't it,
15 that if this Board were to say yes in all respects to
16 Ontario Hydro in this hearing, the Board would at the
17 end of the day not be able to determine what
18 generation, if any, will be added to the Ontario Hydro
19 system in the future as a result this order; isn't that
20 correct?

21 MR. SNELSON: A. Can you be a little
22 more specific in your question?

23 Q. Well, it's a relatively simple
24 question.

25 At the end of the day this Board will not

1 be able to determine what generation, if any, will be
2 added to the Ontario Hydro system in the future as a
3 result of its order; isn't that correct?

4 A. There are a range of possibilities
5 for the future, yes.

6 Q. So let's look at NUGs. According to
7 your evidence, as I understand it, a complete approval
8 of your plans by this Board could mean as much as 3,100
9 megawatts of NUGs, or as little as 1,516 megawatts by
10 the year 2000; is that right?

11 A. I don't believe that the approval by
12 this Board of the Manitoba transmission, the
13 transmission to incorporate the Manitoba Purchase or
14 the hydraulic range of capacity and energy that we are
15 seeking would constraint the development of NUGs to be
16 within the range that you have indicated.

17 Q. So, in fact it could be a broader
18 range than that. This Board has no idea at this point,
19 nor do you.

20 A. I don't think no idea is the right
21 characterization, but there are a range of
22 possibilities in the future, and we are not seeking
23 approval, as I understand it, of specific quantities of
24 non-utility generation.

25 Q. Well, we have heard a great deal of

1 evidence about NUGs in this hearing, unless I am
2 missing something, there must be a reason for that;
3 isn't there?

4 A. That is correct, and it is an
5 important part of our plans.

6 Q. And is it an important part of this
7 Board's considerations?

8 A. I believe so.

9 Q. Okay. Whether you buy power from
10 major supply NUGs or build CTUs or even other
11 generation instead, that's a question that Hydro will
12 decide later its discretion; correct?

13 A. Instead of what?

14 Q. Well, your DSP Update says we may
15 need increments of power at various places along the
16 way and they might be NUGs and they might be CTUs or we
17 might do something else; isn't that what it says?

18 A. Well, the DSP Update principally says
19 here is a number of scenarios by which the future can
20 unfold that we have analyzed, and the DSP Update
21 document 452 effectively includes six of those. And
22 the response portfolio that is in that document
23 discusses a variety of ways in which one could respond
24 to circumstances that were different to the median load
25 forecast and the set of assumptions that go with that

1 in the Update document.

2 Q. And so, for example, one of them is
3 combined-cycle plants, for example, one of your
4 response possibility is combined cycle plants?

5 A. There are the possibilities of
6 combined-cycle plants either built by non-utility
7 generators or built by Ontario Hydro.

8 Q. But you haven't told this Board what
9 you are going to do.

10 A. We can't decide what we will do in
11 the event of as yet unforeseen circumstances until we
12 know what those unforeseen circumstances are.

13 I think that the essence of planning
14 around the median is to consider a range of possible
15 uncertainties that one faces and consider the range of
16 possible responses one has.

17 I don't think one can be specific as to
18 what one is going to do until one knows what the future
19 holds for us.

20 Q. And so when you do know the problem
21 facing you at any given point in time, then Ontario
22 Hydro will decide the question in its discretion;
23 right?

24 A. Yes, recognizing that some of those
25 decisions would require approvals or cooperation of

1 certain other bodies.

2 Q. Let's look at demand management. You
3 plan to achieve a total of 5,200 megawatts of demand
4 management in the next 10 years; right?

5 A. We have a target, I believe, Mr.
6 Shalaby has talked of, of 5,200 megawatts. I believe
7 the Update plan shows actually only 4,800.

8 Q. Okay, 4,800. But the timing, the
9 components, the program types, all of those things with
10 respect to that option, those will not be known by this
11 Board when it makes its decision, will they?

12 A. Our forecasts will be known and they
13 will have been thoroughly discussed, I believe, in
14 front of this Board.

15 Q. All right. But the component parts,
16 the program types, et cetera, the programs themselves,
17 those aren't done yet, right? You are going to decide
18 those later.

19 MR. SHALABY: A. Many are already in
20 place and many others were described as to their
21 character, their potential.

22 But perhaps what I am reading in your
23 question is the exact timing and location of
24 implementation of programs, length of programs, those
25 details have not been fully worked out.

1 Q. In effect, all you have provided is
2 illustrative programs; right? The ones you are doing
3 now, because there will be a lot more programs that you
4 are not telling this Board about yet because you don't
5 know yet; right?

6 A. We have in the evidence we presented
7 to Panel 4 all the programs that are already on the
8 street today.

9 Q. Of course.

10 A. Those are real and in place.

11 We have provided a lot of other
12 possibilities that we are looking into that could
13 become programs over the next several years as well.

14 Q. But you didn't say which ones you are
15 going to do.

16 A. I think we are indicating that we are
17 trying to do them all.

18 Q. Okay.

19 A. Or the vast majority of them.

20 Q. And more?

21 A. And more if we find more. As we
22 learn and as we collect information about the market
23 and about the market and about the product, we will
24 modify the programs, yes.

25 Q. One of your future response options

1 in surplus situations is to cut back on some types of
2 DSM; right?

3 A. Yes.

4 Q. And at this point the Board doesn't
5 know and can't know from your evidence to what extent,
6 if any, you will cut back on DSM as compared to cutting
7 back on other things in the future; does it?

8 A. No, from the evidence Mr. Snelson
9 indicated we are going to be cutting back roughly in
10 reverse order of priorities to the strategic priorities
11 that we have.

12 Q. Roughly?

13 A. Yes.

14 Q. Let's look at hydraulic then. If
15 this Board approves the 1,400 to 1,800 megawatts of
16 hydraulic that you have asked for, it doesn't know
17 whether Mattagami will be built, whether Patten Post
18 will be built, whether Little Jackfish will be built or
19 any other specific project, does it?

20 MR. SNELSON: A. I believe there was a
21 long discussion as to the nature of the hydraulic
22 approval prior to Panel 6 in which it was established
23 that the approvals that were appropriate to seek here
24 would be non-site-specific.

25 Q. I understand. I am not criticizing

1 you for not telling the Board that you are going to
2 built Mattagami or not. But it is a fact that the
3 Board can't know at the end this hearing what you are
4 going to build or not?

5 A. I think that's the case actually in
6 the case of many approvals. The point has been made in
7 front of the Board in this cross-examination by other
8 parties that a proponent who obtains approval doesn't
9 have to act upon that approval immediately.

10 Q. And in fact one of your response
11 options is to cut back on hydraulic, right, so we might
12 not have any.

13 A. One of our responses to surplus is to
14 cut back or to delay on hydraulic, yes.

15 Q. So just to take this hypothetical,
16 just with the ones I have dealt with so far. You could
17 decide to go ahead with the hydraulic for economic
18 reasons, say, or because the government asked you to,
19 and ramp back DSM to manage surplus, or you could do
20 the reverse, get all the DSM you can and add no
21 hydraulic. This Board has no way of knowing what you
22 are going to do, does it?

23 A. I think we have shown the priorities
24 that we have and those have been fairly consistent in
25 our planning for the last three or four years, and they

1 actually build on some previous directions, and those
2 are the directions that we carry forward in our
3 planning.

4 Q. So then you will not ramp back any
5 demand management in favour of hydraulic. Will you say
6 that to this Board now?

7 A. No, I don't think we could be that
8 definitive.

9 Q. You will decide that later, that
10 balancing between the two.

11 A. We are discussing the shape that we
12 expect the plan will take, and I think you can indicate
13 the general shape of plan that we expect in the future
14 under a variety of circumstances.

15 The nature of planning is such that
16 things do change and decisions will be made by whatever
17 is the appropriate mechanism to make those decisions to
18 respond to the changing circumstances.

19 Q. In the fall of last year you
20 implemented a co-planning requirement for Abitibi
21 complex; right?

22 DR. TENNYSON: A. Yes. There was a
23 co-planning agreement, yes.

24 Q. And as a result, all planning on
25 Abitibi complex has now been suspended?

1 A. It's my understanding that that's the
2 larger one, that's beyond the Mattagami, that is the
3 subject.

4 MR. SNELSON: A. Yes.

5 DR. TENNYSON: A. Okay, if it's beyond
6 that, actually Ontario Hydro is only proceeding in line
7 with the actions that are being taken in respect of
8 establishing a process for co-planning, and the
9 government had appointed a mediator, a process is now
10 being vetted and we are part of that.

11 Q. It's true, isn't it, that work on
12 post Mattagami/Moose River developments has been
13 suspended pending establishment of a co-planning
14 process with Aboriginal peoples; is that true?

15 A. That is true, and what I want pointed
16 out is that there is now some movement in terms of
17 establishing such a process.

18 Q. Now, you talked, Mr. Snelson, about
19 the uncertainty of the future. But I guess some things
20 are within your control, and one that you could do is
21 you could implement co-planning for all your hydraulic;
22 right? It's not outside the realm of possibility.

23 [4:04 p.m.]

24 MR. SNELSON: A. The subject of planning
25 is more in Dr. Tennyson's area.

1 DR. TENNYSON: A. And the question was
2 one could?

3 Q. It is possible that Hydro will in the
4 future implement co-planning for all of its hydraulic
5 developments.

6 A. This particular co-planning as it has
7 been called and done, Hydro's position was a joint
8 planning-type arrangement. And yes, we have gone into
9 some versions of joint planning with other groups as it
10 has been worked out with those groups. So I would
11 characterize this particular one as once again, a type
12 of arrangement that has to be negotiated and worked out
13 with the parties. So yes, in principle this could
14 happen.

15 Q. It could happen. And as a result of
16 that, you might end up with no hydraulic in your plan
17 for a while, right?

18 A. No, I don't believe that.

19 Q. So there is no possibility in the
20 future that you would either implement co-planning or,
21 at the second level, find that once implemented that
22 you couldn't end up getting through it and getting
23 facilities built; no possibility at all.

24 A. It's a lot of hypotheticals for me to
25 deal with. But I'm saying that there are hydraulic

1 projects. I don't know how specific one can be here,
2 but there are hydraulic projects that ostensibly are
3 part of the megawatt range we are seeking approval for
4 that do not involve such agreements or co-planning, if
5 you want to call it that. So that's one point.

6 And the point is that, therefore, I
7 cannot see a future where there would be no hydraulic
8 that would be approved. The second point, I cannot
9 presume any outcome of the planning arrangement. To me
10 the idea of planning is that you look at the sort of
11 cost and benefits of the project at that time and
12 determine whether it's acceptable to the parties to
13 continue.

14 Q. So does that mean, do I understand,
15 then, co-planning to mean that you would not implement
16 co-planning if you felt that the result would be that
17 you wouldn't get a project out of it?

18 A. I didn't say that.

19 Q. Well, you can't have it both ways,
20 Dr. Tennyson. On the one hand --

21 A. Excuse me, I thought you did.
22 Anyway, go ahead.

23 Q. I'm asking you the question, is it
24 possible that Ontario Hydro would implement a complete
25 policy, we will not build hydraulic unless it's done

1 under a co-planning arrangement? I believe your answer
2 was yes.

3 A. I believe my answer was no.

4 Q. So you will then say to this Board
5 today, we will not implement such a policy during this
6 planning period, is that what you will say to this
7 Board?

8 THE CHAIRMAN: I think she said she's not
9 going to do a comprehensive policy. I think that's
10 what she said.

11 MR. SHEPHERD: That's fine.

12 THE CHAIRMAN: I mean, they do it on an
13 area-by-area basis. There are some areas that are
14 appropriate to co-planning and some that aren't.

15 MRS. FORMUSA: And the reason I'm
16 standing, Mr. Chairman, is to remind the Panel that
17 this matter was discussed by Ms. Quinn on Panel 6 and
18 she talked about the reasons for co-planning for that
19 particular range of megawatts and the viability of the
20 1,400 to 1,800 megawatt range. So I think this matter
21 was canvassed in Panel 6.

22 MR. SHEPHERD: Mr. Chairman, I'm not
23 talking about that at all. This question is not really
24 about co-planning. It's about how much this Board
25 knows about what Hydro is going to do.

1 And the question I'm asking is, is it
2 possible, is it within the possible futures that this
3 Board must consider that Ontario Hydro will in the
4 future implement across the board co-planning
5 requirement for hydraulic.

6 THE CHAIRMAN: And Dr. Tennyson's answer
7 was no.

8 MR. SHEPHERD: And if her answer is no,
9 then I am asking, can this Board then assume that that
10 is a commitment by Ontario Hydro not to implement such
11 a policy?

12 THE CHAIRMAN: Of course not. I think
13 that all that we will know at the end of the day, I
14 hope, is what Ontario Hydro knows. We can't know any
15 more than they know, and we will probably,
16 unfortunately, know less. But we can't know any more
17 than they'll know.

18 MR. SHEPHERD: Well, I hope, Mr.
19 Chairman, that you will also know what some of the
20 Intervenors know.

21 Let me go on to transmission.

22 Q. Is it correct, Mr. Snelson, that you
23 are asking for transmission approvals? Yes?

24 MR. SNELSON: A. Yes. We are asking
25 approval for the rationale and requirement for the

1 transmission associated with the Manitoba Purchase.

2 Q. I'm sorry. I also thought you were
3 asking for radial transmission associated with new
4 supply?

5 A. We are asking for radial transmission
6 associated with the hydraulic potential, yes.

7 Q. But we don't know how much
8 transmission that is?

9 A. You cannot be specific about the
10 amount of radial transmission until the hydraulic sites
11 are identified.

12 Q. We talked about response options.
13 And I understand your evidence to be that the
14 information you have provided to this Board on response
15 options does not include all possible risks and it does
16 not include all possible response options; is that
17 correct?

18 A. That is correct.

19 Q. So if I am driving at questions like
20 can this Board predict what you will do in situation X
21 in the future, that's a step beyond; they don't even
22 know the full menu that you will have before you when
23 you make that decision, isn't that correct?

24 A. I think we have given the general
25 indication of the range of options that are likely to

1 be available to us. But there are possibilities of
2 other responses that are not in that table.

3 Q. And, in fact, some of those responses
4 you know now but you have rejected, right, so you
5 haven't included them in your evidence.

6 A. I'm not sure what you are referring
7 to.

8 Q. Well, let me back up a step. You
9 have given a number of response options for surplus
10 management as one of your risks, low load.

11 I take it that the response options you
12 have put before this Board as possibles are not all the
13 response options you, Ontario Hydro, are aware could be
14 used?

15 A. In terms of managing surplus?

16 Q. Yes.

17 A. No, I believe that it's quite a
18 comprehensive range of the possible response options
19 but it's not all of them.

20 Q. It's not all of them, okay. So, for
21 example, one of response options which has been much
22 debated is rate-induced demand management. That's not
23 included as a response option that you have presented
24 to this Board; correct?

25 A. You were just talking about ways of

1 managing surplus. And rate-induced demand management
2 is not a way of managing a surplus. It would tend to
3 complicate and exacerbate the surplus.

4 Q. Sorry. Okay. I'm embarrassed. All
5 right. Let's go back to -- I give up. Let's go back
6 to nuclear.

7 This Board is going to be asked by a
8 number of parties to approve requirement rationale for
9 a nuclear station, as I understand some of the
10 positions.

11 Suppose this Board were to grant that.
12 If it did, it's true that it would have no way of
13 knowing at this time when you would proceed with that,
14 whether you would you proceed with it at all, what
15 technology you would use, what area of the province you
16 would select for siting, or any other aspect of that,
17 isn't that correct?

18 A. Well, this is a hypothetical
19 situation. You are presuming that an approval for
20 nuclear is granted that we are not requesting. And I
21 understand that that is at least a legal possibility.
22 And then you are speculating as to what we would do
23 with it. And I think you are correct; that seeing as
24 we haven't asked for it, then you can't expect to us
25 say what we would have done with it.

1 Q. Although if you got the approval, you
2 could in the future act on it in a variety of ways;
3 right?

4 A. I believe theoretically, yes.

5 Q. And the same is true of fossil,
6 right? If this Board were to say integrated coal
7 gasification is a great thing, that doesn't mean that
8 we will end up with any in Ontario.

9 A. I believe that that is also correct.

10 Q. In fact, even the most clear of your
11 options, the Manitoba Purchase, if you get the
12 approvals you are seeking here, this Board can't
13 predict that you will actually go ahead with the
14 contract, on time, as planned; is that correct?

15 A. We intend to go ahead with the
16 contract and that is our current plan.

17 Q. I understand that's what you intend
18 to do.

19 A. Yes.

20 Q. But this Board cannot predict that
21 that will actually happen, can it?

22 A. I'm sure there are circumstances
23 where that could be different.

24 THE CHAIRMAN: I'm not sure what this is
25 all about. I mean, nobody is going to be able to know

1 the future. And there are a host of possibilities that
2 may occur in the future. Where is this leading to?
3 I'm not quite sure what this line of cross-examination
4 is directed to try and establish.

5 MR. SHEPHERD: I will resolve it in about
6 two questions, Mr. Chairman, three questions.

7 Q. Isn't it true, Mr. Snelson, that the
8 uncertainty about what you are going to do in the
9 future is so serious that unlike the 1989 DSP, at this
10 point and time you are not even presenting a preferred
11 plan to this Board, is that correct?

12 MR. SNELSON: A. We have presented the
13 document 452, and it indicates our preference for
14 approvals for the hydraulic and for the Manitoba
15 Purchase. And it indicates the ways in which the case
16 may play out. We have indicated that we prefer to
17 manage any surplus that might arise around the year
18 2000, before and afterwards. We have not indicated the
19 major supply options that we would choose for beyond
20 2009 because we don't believe we need to make those
21 choices today.

22 Q. All right. In order to consider the
23 approvals you have sought, the Board, I think you will
24 agree, has to consider all of the elements of the
25 package you put before it or the other elements, even

1 the ones not being approved, right? It fits together.

2 A. Yes, we believe that they have to
3 look at the approvals requested in the context of the
4 overall plan.

5 Q. But there is no overall plan.

6 A. I think that we have given a pretty
7 clear indication of the type of overall plan that we
8 see these options fitting into.

9 Q. Which may or may not have a managed
10 surplus; correct?

11 A. Our intention is to manage the
12 surplus, and that has been our evidence.

13 Q. So the unmanaged surplus "plans" are
14 only for comparison purposes. They shouldn't be
15 considered to be things you would actually end up
16 doing.

17 A. They tend to indicate that they are
18 for comparison purposes. Our intention is to manage
19 the surplus. But the ways in which we have indicated
20 that the surplus could be managed in the managed
21 surplus cases may change over time as a variety of
22 decisions are made.

23 Q. You have also presented an enhanced
24 plan. And I understand from the evidence that you gave
25 the other day that you are not recommending that that

1 be approved either?

2 A. Our intention is and our current
3 program is to plan on the degree of environmental
4 controls that are in the update plans, nuclear and
5 fossil. And they have the same degree of environmental
6 controls for the next 10 or 15 years.

7 Q. So the enhanced plan is only there
8 for comparative purposes, as well, presumably.

9 A. Yes. We have discussed, I think,
10 with AECL that it is an alternative.

11 Q. It's an alternative method of
12 carrying out the undertaking of some sort.

13 A. It's an alternative, yes.

14 Q. Alternative something, all right.

15 A. Yes.

16 Q. I have asked you these questions to
17 get at a problem we have been having with what you are
18 asking for. Could you describe for us the difference
19 in your mind between a strategy and a plan?

20 A. They tend to be differences of degree
21 rather than principle. The strategy tends to be more
22 general, and a plan tends to be more specific.

23 Q. You had a planning strategy or you
24 have a planning strategy, I guess, still, right? The
25 demand/supply planning strategy?

1 A. That is correct.

2 Q. And that is still your strategy?

3 A. Yes.

4 Q. Now, when most people think of plans,
5 they think of sort of a specific sets of predictable
6 steps that the planner proposes to undertake. Does
7 that sound about right to you? That's what a plan is?

8 A. Yes, but I think you have to
9 recognize that long-term plans, no matter how specific
10 the steps might be written down at one point and time,
11 then because they will have to respond to change that
12 you can't presently foresee, do actually encompass a
13 range of possible outcomes.

14 Q. Well, in planning, don't you normally
15 do that by milestones and branches, decision points
16 with predictable choices depending on what the external
17 factors are? Isn't that what planning is?

18 A. You may use some of those techniques.

19 Q. You are not doing that here.

20 A. We haven't outlined all of those
21 things, though we have shown illustrative cases of how
22 we could respond to upper load growth. We have shown
23 illustrative cases of how we could respond to lower
24 load growth.

25 [4:20 p.m.]

1 Q. But that's like presenting a menu and
2 saying these are the things we are going to choose
3 between in the future; right?

4 A. No.

5 Q. And this is sort of how we might do
6 it, but we are not sure?

7 A. These are decisions that until the
8 circumstance arises and the full details of that
9 circumstance are known, then the Corporation hasn't had
10 to address and make final decisions on these points.

11 Q. You haven't said anywhere in your
12 materials, except perhaps with respect to Manitoba --
13 let me leave that aside after your answer just a few
14 minutes ago.

15 You haven't said anywhere in your
16 materials if event "x" happens we will do "y". You
17 haven't said that anywhere; have you?

18 A. No, we have not. There are many,
19 many events "x" and for each event "x" there are
20 several responses "y" and we have indicated some of
21 those types of responses in our response portfolio, but
22 we haven't fully laid out all possibilities.

23 Q. So you've said in effect, if event
24 "x" happens or some combination of events "x" happens,
25 we, Ontario Hydro, will use our judgment to choose

1 between these options and maybe others, applying a
2 series of principles that we have disclosed to you;
3 isn't that correct?

4 A. We will carry on the business of
5 planning an electricity utility, yes.

6 Q. Okay.

7 A. Which is our primary business.

8 Q. But it sounds to me - maybe I just
9 misunderstand - but it sounds to me like it isn't your
10 Demand/Supply Plan that you are putting to this Board
11 but rather your demand/supply planning strategy that
12 you are putting to this Board.

13 Isn't that right, really?

14 A. No. We are asking for approval of a
15 substantive quantity of transmission, the requirement
16 and rationale for it, we are asking approval for 14- to
17 1,800 megawatts which is approximately, in capacity
18 terms, a quarter of the existing hydroelectric
19 generation in the province, we are asking for
20 substantial quantities of approvals to this purpose.

21 Q. For now. That's what you are asking
22 today?

23 A. Yes.

24 Q. That isn't what you were asking a
25 year ago?

1 A. That is correct.
2 Q. Your plans change; right?
3 A. That is correct.
4 Q. And it's going to change again; isn't
5 it?

6 A. Most likely there will some changes
7 in plans in the future, yes.

8 Q. Okay. Let me explain to you why I
9 have a problem with this.

10 Turn please to page 2 of Exhibit 74,
11 that's the demand/supply planning strategy. See, you
12 talked about the fact that strategies and plans are
13 sort of different in degree but Ontario Hydro, when it
14 did the demand/supply planning strategy, knew exactly
15 what the difference was. It says:

16 "Each year, Ontario Hydro produces
17 a Demand/Supply Plan. The Demand/Supply
18 Planning Strategy (DSPS) is a set of
19 principles, priorities and guidelines
20 which will be applied in developing each
21 year's plan. The 1989 Demand/Supply Plan
22 will be the first plan based on the
23 approved DSPS."

24 Now, correct me if I'm wrong, but it's
25 either one of two things: Either you are asking this

1 Board to review and comment on a Demand/Supply Plan
2 which will be out of date before the ink is dry on
3 their ruling, or you are really asking this Board to
4 review and comment on the demand/supply planning
5 strategy, the principles, priority and criteria that
6 you use to develop your plans. Which is it?

7 A. We are asking for approval of the
8 transmission associated with the Manitoba purchase and
9 we are asking for approval of a range of hydraulic
10 capacity, and that's the requirement and rationale and
11 associated radial transmission, and in looking at those
12 approvals requested, we do expect that that will be
13 done in the context of the overall range of possible
14 planning circumstances that are likely in the future.

15 Q. And that is described in your
16 strategy.

17 A. The strategy describes the
18 principles. I believe that what we have put forward is
19 a lot more specific than is in the strategy.

20 Q. Let's come back to that later. Why
21 don't we take a look at the DSPS. We are going to
22 spend a little while on this, so let's figure out what
23 those principles, priorities and guidelines are.

24 Now, you testified that the DSP Update is
25 consistent with the DSPS, it's an expression of those

1 principles, priorities and criteria; correct?

2 A. Yes, taking into account that there
3 have been some changes and some things that were not
4 foreseen at the time of the strategy.

5 Q. Okay. But aside from those which you
6 discussed in your direct evidence.

7 A. Yes.

8 Q. Okay. So you talked about the five
9 priorities, strategy directions which are found at page
10 6. They continue unchanged; correct?

11 A. Yes.

12 Q. Just help me out about something in
13 the wording here. If you look at No. 2, it says:

14 "Ontario Hydro will give top
15 priority to demand management..."

16 Then if you look at Nos. 1, 3 and 4
17 dealing with existing system NUGs and hydraulic,
18 they're characterized as high priorities, and No. 5,
19 major supply, is characterized as keep options open.

20 Do these characterizations reflect in any
21 way the relative priorities of these five basic
22 thrusts?

23 A. To some degree, yes.

24 Q. Okay. To what degree?

25 A. Well, clearly we have consistently

1 considered major new supply, fossil and nuclear major
2 new supply to be lower priority than any of the things
3 that precede it.

4 Q. Okay. And is it correct to say that
5 your top priority is demand management, it's ahead of
6 every other option.

7 A. We are certainly giving very high
8 priority to demand management and we are proceeding
9 with our demand management plans even though that may
10 create some surplus.

11 Q. Is that a yes?

12 A. I think that sometimes the --
13 certainly demand management is a very high priority. I
14 have a bit of problems with the top in this scenario.

15 MR. SHALABY: A. Yes, we went through
16 that in Panel 4, I think. Again: Is it the top/top or
17 is it very high or is it just high and I think we reach
18 the same conclusion. It's a high priority. Obviously
19 in a company the size of Hydro, somebody at a plant
20 that has a problem in a pump, that to him is a high
21 priority, so...

22 But the corporate priority clearly
23 indicates, and we indicated that in Panel 4, that
24 demand management is one of the high priority options
25 for Hydro.

1 So I'm just informing Mr. Snelson here
2 that we went through a long discussion of that before
3 and if the Board wishes we go through it again, we can,
4 but perhaps that ground has been covered.

5 Q. I don't want to go through it again,
6 Mr. Shalaby. Is demand management a higher priority
7 than upgrading and refurbishment of the existing
8 system?

9 A. We may have differing opinions, but I
10 would put the two of them as the top two priorities the
11 company has in its hands today.

12 Q. Okay. So they are equal?

13 A. Trying to rank these two 1 and 2 or 2
14 and 1, I think, in my own mind, doesn't serve a useful
15 purpose.

16 Q. Well, at some point you are going to
17 have to --

18 THE CHAIRMAN: I guess what you are
19 saying is you can't precisely grade these--

20 MR. SHALABY: That's right.

21 THE CHAIRMAN: --these various matters;
22 is that right?

23 MR. SHALABY: Yes. Perhaps you can say
24 demand management is the highest priority of additions
25 or new options.

1 MR. SHEPHERD: Q. Okay.

2 MR. SHALABY: A. That much we probably
3 can say.

4 Q. So you do that before you would do
5 life extensions?

6 A. Well, that's the existing system.

7 THE CHAIRMAN: That's not a new option.

8 MR. SHALABY: That's the existing system.

9 THE CHAIRMAN: I think the evidence is
10 that the order goes: demand management, NUGS--

11 MR. SHALABY: Hydraulic.

12 THE CHAIRMAN: --hydraulic and new major
13 supply.

14 MR. SHALABY: That's right.

15 THE CHAIRMAN: And that is the general
16 list of priorities.

17 MR. SHEPHERD: Q. And where's the
18 existing system in that?

19 MR. SHALABY: A. That's a high priority
20 but almost in a separate track, if you like, or you
21 maintain the existing system and then when you need to
22 add, you will add in the following set of priorities.

23 Q. Well, we just heard Mr. Snelson say
24 that we can understand how Hydro will do response
25 options because you will simply do them in reverse

1 order of priority to this evidence.

2 Well, in that reverse order of priority,
3 where is mothballing a plant? It's a separate track?

4 MR. SNELSON: A. I think we have
5 difficulty nailing down these priorities absolutely
6 hard, but we would not normally buy new non-utility
7 generation if it was to require us to mothball a plant
8 for a long period of time.

9 I doubt that we would build a new
10 hydroelectric generating plant that was to require us
11 to mothball large parts of the existing system for a
12 long period of time.

13 As a question of management of load and
14 capacity balance over a period of time, then I could
15 see that these things aren't going to balance precisely
16 and you may have some of those things going ahead
17 concurrently.

18 Q. I notice you left out demand
19 management. Can I take it that you would not implement
20 a demand management program or set of programs if you
21 knew the result was going to be that you had to
22 mothball a plant?

23 A. I think that on the demand management
24 we see that as somewhat different. On the one hand we
25 think there is a very strong desire to make the use of

1 electricity more efficient and that that has long-term
2 benefits, and to achieve that you have to have
3 continuing programs that maintain the thrust over a
4 long period of time.

5 And so I think that it is more likely
6 that we would go ahead with demand management programs
7 that for several years - five years perhaps - caused us
8 to mothball some generating plants.

9 So I see the demand management program as
10 having somewhat less freedom to manage it on a timing
11 basis.

12 Q. I take it then that - and don't let
13 me put words in your mouth - I take it your answer to
14 my question: Would you proceed with demand management
15 if it meant you had to mothball plants, your answer is:
16 There are circumstances in which you might and there
17 are circumstances in which you might not; is that fair?

18 A. Yes.

19 Q. Okay. But except in the very most
20 unusual circumstances you wouldn't proceed with NUG
21 procurement if it meant mothballing a plant. Is that a
22 reasonable interpretation of what you said before?

23 A. I doubt that we would sign contracts
24 for new NUGs if that was to be the case. I think we
25 would want to take advantage of the short lead times

1 with NUGs to provide a better balance between load and
2 capacity.

3 Q. What about the environmental
4 benefits. Would there not be circumstances in which
5 you might want to add environmentally attractive NUGs
6 and mothball environmentally unattractive central
7 generation?

8 MS. HOWES: A. I think we illustrated
9 that in the enhanced plan.

10 Q. Well, yes, I understand except that
11 you are not asking this Board to approve that.

12 A. No, but that was one option for
13 surplus management, if you recall.

14 Q. Yes.

15 A. And the motivation was environmental
16 performance

17 Q. Okay. So you don't plan to do that
18 but you could do that?

19 A. I would say it would be in the range
20 of possibilities.

21 Q. I'm not sure I have figured out what
22 you said about 1 through 4, but let's go to 5. 5 says:

23 "The major supply options are CANDU
24 nuclear, fossil, and firm purchases from
25 Manitoba and Quebec."

1 [4:30 p.m.]

2 Now, looking through the 1989 DSP and the
3 Update I found no mention of the Manitoba Purchase
4 being lumped in with nuclear and fossil as major supply
5 options. It's being treated differently now; right?

6 MR. SNELSON: A. It's being treated
7 differently because it is a signed contract and it's
8 not an option that is yet to be decided upon. It is
9 signed and there is a contract.

10 Q. So once the contract is signed, do I
11 take it that we treat it as more like part of the
12 existing system rather than as one of many future
13 demand/supply options?

14 A. I think we treat it the same as any
15 other signed contract such as a signed contract for a
16 non-utility generator.

17 Q. Well, with a difference that whereas
18 presumably there is a difference in perspective here
19 between Ontario Hydro and the Board; isn't there?
20 Ontario Hydro is in the position where it has signed a
21 contract; right?

22 A. That is correct.

23 Q. So for you it's an obligation you
24 have agreed to.

25 A. That is correct.

1 Q. The Board didn't sign any contract;
2 correct?

3 A. Well, that is obviously self-evident.

4 Q. And it has a totally open-ended
5 option to say yes or no to it; isn't that correct?

6 A. It has to consider the requirement
7 and rationale for the transmission associated with the
8 Manitoba Purchase.

9 Q. And it can say no; right?

10 A. I believe so.

11 Q. And if it says no, you are not in
12 trouble under your contract; are you?

13 A. We are obliged to pay certain
14 cancellation --

15 Q. You pay a penalty, yes.

16 Now, if the Board applies your strategic
17 directions, as opposed to you applying them, if you
18 apply them now you have got a contract so it's
19 different; right? But if the Board applies them it
20 doesn't have a contract, does it. So --

21 A. We have established that the Board
22 could deny us the approval for the transmission and
23 that would result in the -- probably result in the
24 termination of the contract with contract penalties.

25 Q. And isn't it true that if the Board

1 applied your five basic strategic principles, it's
2 right here, it's a major supply option, you do it after
3 demand management and NUGs and hydraulic, you have got
4 a surplus, therefore the Board has got to say no;
5 right?

6 A. I believe that there are commitments
7 that are being made by the Province of Ontario. It's
8 an option that is supported by the provincial
9 government through an Order in Council, and these are
10 facts that the Board will likely take into account in
11 making its decision.

12 Q. But the contract is expressly
13 conditional on this Board's approval; right?

14 A. It is conditional in obtaining
15 approval for the transmission associated with the
16 purchase.

17 Q. Exactly. So when you and Manitoba
18 Hydro entered into it you contemplated that this Board
19 could say no; right?

20 A. We contemplated that they could find
21 that there was no -- that the transmission was not
22 acceptable environmentally.

23 Q. And so there is no embarrassment to
24 the government or to Ontario Hydro or any problem there
25 if this Board says no, is there? You expected that

1 that was a possibility; didn't you?

2 A. It was considered as a possibility,
3 yes.

4 Q. Ontario Hydro has agreed to use its
5 best efforts to obtain approval of the transmission
6 required to incorporate the Manitoba Purchase; is that
7 correct?

8 A. I'm not familiar with the detailed
9 wording of the contract but that's consistent with my
10 understanding.

11 Q. So it obliges you to come to this
12 Board and argue in favour of that contract. Is that
13 your understanding of what you are doing here?

14 A. No. I think we are coming here and
15 putting forward the case for the Manitoba Purchase
16 transmission because we believe that the transmission
17 has benefits for Ontario.

18 Q. Okay. Could you turn to page 15 of
19 the demand/supply planning strategy, please.

20 Now you talked about these general
21 strategic principles, right, in your direct evidence?

22 A. Yes.

23 Q. They are still valid?

24 A. Yes.

25 Q. Before I get into them, I noticed -

1 and this is my last semantics question I have - I
2 noticed that in 1.1, 1.2 and 1.3, you have customer
3 satisfaction is the primary objective, reliability is
4 paramount, and low customer cost is vital.

5 Is there some priority between those or
6 is the creative language just drafting?

7 A. I don't believe there is any priority
8 between those and I think that the next one is also
9 very important, too.

10 Q. Okay. A leadership role is like
11 vital and paramount.

12 A. The environment is one of the very
13 important principles for us.

14 Q. Okay. Now, the question that these
15 principles obviously raise is, is how do you trade off
16 one against the other. So, for example, do you seek
17 the highest reliability within a series of --

18 THE CHAIRMAN: Just a minute. I am
19 reminding myself that the evidence is that in 1.7 and
20 1.8 these principles are collected, and 1.7, as I
21 understand it, is mandatory, they all must be
22 satisfied, whereas in 1.8 they are secondary criteria
23 which puts them in the desirable class. So I take
24 there would be priority as amongst the primary
25 criteria. Would that be right?

1 MR. SNELSON: That is correct.

2 MR. SHEPHERD: Q. It's also true, is it
3 not, Mr. Snelson, that 1.1 through 1.6 are separate and
4 distinct strategic principles to 1.7 and 1.8?

5 A. They are stated that way, yes.

6 Q. Okay. So, for example, the principle
7 rates must continue to be based on costs, that is a
8 separate binding principle; right?

9 A. Yes.

10 Q. Now, trade-offs, let's just take
11 reliability and cost.

12 Do you seek the highest reliability
13 within a series of acceptably low cost plans, or do you
14 seek the lowest cost achievable within equally reliable
15 plans?

16 You see the distinction?

17 A. I hear the distinction.

18 I think the way in which this matter is
19 dealt with was addressed in Exhibit 87, which was the
20 discussion of what is the appropriate level of
21 reliability to maintain, and there are considerations
22 of costs that are weighed against considerations of
23 reliability in coming up with an acceptable level of
24 reliability.

25 Q. And in fact, the way you do it is by

1 putting the dollar value to the reliability; isn't that
2 right?

3 A. We have estimates of the costs to
4 customers of unreliability, yes.

5 Q. And you have this little chart where
6 you see where they intersect and that's the perfect
7 reliability; right?

8 A. That is the analytical way of
9 approaching it. That's one of the sources of
10 information in making a judgment as to what is the
11 appropriate level of reliability.

12 Q. Once you have done that analysis, you
13 throw in a dollop of judgment to get the final result;
14 correct?

15 A. I believe that Mr. Taborek discussed
16 this very extensively on Panel 2, and he discussed
17 other ways of checking that the reliability level, the
18 reserve margin level was reasonable such as comparing
19 it to what other utilities do, comparing it to the
20 sorts of reserves that would have been required in the
21 past with actual unavailability and actual variation of
22 load to provide an appropriate degree of protection.

23 So it's not necessarily just one stream
24 of thought that ends up with saying 24 per cent
25 reliability is what we will plan on.

1 Q. It is true, is it not, that in
2 trading off reliability and cost, a key element of that
3 methodology that you use is monetizing reliability; is
4 that correct?

5 A. It is asking customers what are their
6 monetary costs of unreliability.

7 Q. Fair enough.

8 What about reliability and flexibility.
9 If you have to choose between a reliable but inflexible
10 plan as opposed to a less reliable but very flexible
11 plan, what do you do?

12 A. We essentially make the judgment of
13 flexibility on terms of our overall plans as to whether
14 in fact they have an adequate degree of flexibility.
15 It tends to be looking at a different facet of the
16 plans to the reliability.

17 Q. Well, didn't we hear AECL going on
18 and on this morning about how unreliable your most
19 flexible option, NUGs, is; isn't that right?

20 MRS. FORMUSA: I don't think it's fair to
21 ask the witnesses to comment on cross-examination.

22 MR. SHEPHERD: Sorry, I wasn't here. I
23 was trying to set up.

24 Q. You have heard from time to time,
25 have you not, questions being raised about the

1 reliability of NUGs; is that true?

2 MR. SNELSON: A. Yes, and I don't think
3 that that has been a factor that we have put into our
4 plans with respect to NUGs.

5 Q. Let's assume those questions are
6 true. Let's assume this Board decides that they are
7 true. Is it true that NUGs are among your most
8 flexible options; correct?

9 A. They tend to have shorter lead times
10 and that is a degree of flexibility that we are relying
11 upon in the Update plan.

12 Q. So how do you balance that
13 hypothetically lower reliability against the higher
14 flexibility, how do you do that?

15 A. As I have said, we don't believe that
16 they have particularly lower reliability. We model
17 them and we consider them to have reasonable
18 reliability.

19 Q. Okay. Is it true in fact that with
20 respect to the reliability what you do is you just
21 don't include anything that you don't think is
22 reliable; right?

23 A. We don't take that position. If we
24 were to be including something that was unreliable in
25 our plans, then we would have to assess the degree to

1 which we could depend upon it.

2 But the reliability we are talking about
3 is system reliability, not the reliability of options.
4 So you can still build a reliable system from options
5 with varying degrees of reliability, and that's one of
6 the reasons that you have reserve margins in systems
7 and consequently the system has a higher reliability
8 than any individual option within it.

9 Q. Decisions on flexibility are based on
10 judgment; right?

11 A. To a large degree.

12 Q. Flexibility in fact entails a cost;
13 right?

14 A. It may do.

15 Q. Now, we saw that you have a technique
16 for trading off reliability and cost. Do you have a
17 technique of trading off flexibility and cost?

18 A. No, we don't have an analytical
19 technique for trading off flexibility and cost.

20 Q. How do you determine then whether a
21 particular amount or type of flexibility is worth, say,
22 a 5 per cent increase in costs?

23 A. We haven't assigned any premiums for
24 flexibility.

25 Q. No, but that wasn't my question.

MR. SHALABY: A. In my direct evidence I answered exactly that question.

Q. Okay. Can you tell me what you said?
I read it and I missed it.

A. I said it and I forgot it. [Laughter]

Q. I missed it and you forgot it.

A. I think generally what we said, it's a judgment call. We collect information that is analytical. Some flexibility issues are amenable to analytical study, and others are more amenable to judgment. And we get all the data and we get all the factors and we make a judgment.

I indicated very clearly that that issue of how much flexibility is enough is in the realm of judgment at the end.

Q. I understand. But Mr. Shalaby, at some point --

A. And I made it similar to the issue many of us go through, how much insurance does one buy, how many insurance policies, or how large an insurance policy, and how much premiums you pay for what kind of coverage. Many of us struggle with that and I doubt that very many of us go through a heavy duty analytical technique to decide on that.

[4:50 p.m.]

1 Q. Yes, but then we are not being paid
2 as expert planners now, are we? You are.

3 A. Judgment is a fairly dear commodity.

4 Q. Okay. Periodically you are presented
5 with flexibility decisions, specific flexibility
6 decisions, correct?

7 A. Yes.

8 Q. Let me give you an example. You have
9 presented to you a possibility of reducing your lead
10 time for a particular generation decision from eight
11 years to five years. It's very specific. If you take
12 this action, you reduce your lead time three years,
13 from eight to five.

14 A. Yes.

15 Q. The cost will be 5 per cent.

16 A. Yes.

17 Q. How do you decide whether to do it
18 or not?

19 A. We have done studies exactly of that
20 nature in the '87 series of demand/supply planning
21 studies. To exact the answer to the question, the
22 worth of planning flexibility. What is the value of
23 shortening leads times. We have done exactly that
24 study and it's filed in front of this Board.

25 Q. Good.

1 A. So that's an example of, if you tried
2 to do this analytically what kind of benefit would you
3 find from shortening the lead time.

4 And I think the conclusion of that study
5 was the shortening of lead time for base load low cost
6 supply options is a very valuable thing to do.

7 And one of the results of that is that we
8 went into this hearing, the rationale and need hearing
9 to shorten the lead time for major supply option. We
10 were convinced that the shortening of lead time is a
11 worthwhile thing to do.

12 So there is analysis that was done and
13 it's finally in front of this Board. As with every
14 analysis, there are limitations and there are lessons
15 to be learned from every analysis.

16 Q. And it wasn't just a single value,
17 was it? It was a range of values depending on the
18 circumstances.

19 A. Yes.

20 Q. And that value of shorter lead times,
21 that is presumably included in your 10 per cent
22 preference premiums for NUGS?

23 A. Again, that 10 per cent took probably
24 190 pages of transcripts. I don't know whether we want
25 to add to that.

1 Q. I'm just asking whether it's in
2 there, or not. It's a yes/no question.

3 A. It is an indication of preference for
4 NUGs. And one of the preferences for NUGs is a short
5 lead time, yes.

6 Q. Now, conceptually doing that, making
7 a decision about the value of flexibility in given
8 circumstances or, indeed, making a decision about the
9 value of reliability in certain circumstances,
10 conceptually that's not different from determining the
11 value of tonnes of CO(2) emissions, is it, Mr. Snelson?

12 MR. SNELSON: A. Yes, I think it is
13 conceptually different.

14 Q. How is it conceptually different?

15 A. We asked the customers for their
16 reliability calculations, what was their estimate of
17 their monetary lost as a result of unreliability. And
18 that is a function directly of how reliable the
19 electricity system is.

20 Q. And they told you what they thought
21 their costs were?

22 A. Yes.

23 Q. Okay. Now, that's not a cost that's
24 borne by Ontario Hydro, is it? It's a cost that's
25 borne by the customer.

1 A. It's a cost borne by the customer,
2 the same as some of the costs of demand management are
3 borne by the customer.

4 Q. All right. But excuse me, back up.
5 Before you put in the reserve margin which reflects
6 that reliability conclusion, before you put that in,
7 your unreliability in your system is something that the
8 customer pays out of their pocket, right? If you are
9 unreliable, it costs them?

10 A. Yes.

11 Q. And so what you do is you add a
12 reserve margin and internalize that cost. You take it
13 from the customers and you make it a Hydro cost that
14 all customers share, is that correct?

15 A. We are trying to minimize the total
16 cost of electricity service to our customers, and
17 customer costs include customer unreliability. They
18 include costs that may pay for demand management
19 options that are associated with some ways of reducing
20 their need for electricity service from us.

21 Q. I agree. You will agree, though,
22 that if you make a change in your reserve margin, the
23 effect of that is to shift costs from customers to
24 Hydro to be shared across the rate base; is that
25 correct?

1 A. There can be. There are shifts in
2 the way in which the costs are incurred. And some of
3 them are incurred directly by customers out of their
4 own pocket. Some of them are incurred by Ontario Hydro
5 and recovered from customers through electricity rates.

6 Q. Now, do you agree that environmental
7 damage represents cost, real economic costs to your
8 customers?

9 A. There are certainly effects upon
10 society at large from the accumulation of emissions
11 from Ontario Hydro and from other sources of emissions.

12 Q. I didn't think that was a really hard
13 question, Mr. Snelson. Either you believe that there
14 are real economic costs to your customers as a result
15 of environmental damage or you do not. Could I have a
16 yes or a no?

17 A. They don't occur as costs to our
18 customers because they are customers. They occur as
19 costs to society. And as has been pointed out before,
20 there is, of course, a overlap between electricity
21 customers and the people in society at large.

22 Q. So your customers as members of
23 society bear those costs?

24 A. Along with the other members of
25 society, and along with the costs of other producers of

1 emissions.

2 Q. Now, is there any reason
3 conceptually, forget the practical difficulties that we
4 have talked about at some length, and I won't go
5 through those again. Is there any reason conceptually
6 why in the same way that you have moved the cost of
7 reliability from your customer to Ontario Hydro, you
8 couldn't do the same thing with environmental damage?

9 A. Yes. Our concept here is of
10 minimizing our total customer cost. And the
11 reliability trade-off and the demand management
12 trade-off are costs that are inherently incurred by
13 customers, either directly or indirectly through
14 electricity rates because of their use of electricity.

15 We do maintain the distinction between
16 customers and society at large and the costs of the
17 effects of the environmental emissions are felt by
18 society at large. And it may not even be constrained
19 to the people of Ontario.

20 Q. So, if Ontario Hydro does
21 environmental damage, an individual member of Ontario's
22 society who is a customer as a result has an economic
23 cost, it would not be right for Ontario Hydro to move
24 that cost to Ontario Hydro because the customer isn't
25 bearing the cost because they are using electricity,

1 they are bearing the cost because you are producing
2 electricity, which is different, right?

3 A. Yes, it's different. And, I mean, we
4 have been through these things in Panel 3. But the
5 difference is that Ontario Hydro has the primary
6 responsibility for the electricity system. And we
7 extend that to encouraging customers to use our
8 product, electricity, well and how it is used. So what
9 we are talking about is a confined body of actions and
10 reactions that are within the basic authority or basic
11 encompass of the electricity system.

12 When you go to the effects of emissions
13 of acid gases, then there are many other emitters of
14 acid gases. You are into a much different jurisdiction
15 in terms of the management of that issue. When you get
16 into carbon dioxide emissions, then you are into
17 emissions that contribute to something that people are
18 concerned about from a global perspective. We are one
19 of many. We are one of many contributors to that, and
20 we acknowledge that in Ontario. And Ontario is just
21 one of many contributors to that in the world.

22 Mr. Chairman, that might be an
23 appropriate time to break.

24 THE CHAIRMAN: All right. We will break
25 until tomorrow morning at ten o'clock.

THE REGISTRAR: All rise. This hearing
began until ten o'clock tomorrow morning.

---Whereupon the hearing was adjourned at 5:00 p.m., to be reconvened on Wednesday, June 3, 1992, at 10:00 a.m.

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